

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., AND
SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners

v.

KEYLESS LICENSING LLC,

Patent Owner.

Case IPR2025-00527
Patent No. 10,976,922

**DECLARATION OF DR. BENJAMIN B. BEDERSON, PH.D.,
IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,976,922**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	SUMMARY OF OPINIONS	3
III.	QUALIFICATIONS AND BACKGROUND	3
IV.	MATERIALS CONSIDERED	14
V.	LEGAL STANDARDS.....	18
A.	Level of Ordinary Skill	19
B.	Legal Standards for Determining Priority Date	20
C.	Prior Art	22
D.	Anticipation	23
E.	Obviousness	23
VI.	TECHNOLOGY BACKGROUND AND STATE OF THE PRIOR ART	28
VII.	THE '922 PATENT	36
A.	Alleged Invention of the '922 Patent.....	36
B.	Prosecution History.....	41
C.	Priority Date for the '922 Patent Claims	43
D.	Claim Construction.....	49
VIII.	LEVEL OF ORDINARY SKILL IN THE ART	50
IX.	THE PRIOR ART	51
A.	<i>Goktekin</i> (U.S. Patent Application Pub. No. 2013/0234945)	52
B.	<i>Koch</i> (U.S. Patent Application Pub. No. 2012/0113023)	52
C.	<i>Sirpal</i> (U.S. Patent Application Pub. No. 2012/0110486).....	53

D.	<i>Vincent</i> (U.S. Patent No. 8,744,173).....	56
E.	<i>Aravamudan</i> (U.S. Patent Application Pub. No. 2012/0215533).....	56
F.	<i>Matthews</i> (U.S. Patent No. 7,340,686)	57
X.	GROUND OF UNPATENTABILITY IN MY OPINION	58
XI.	THE CHALLENGED CLAIMS ARE UNPATENTABLE OVER THE PRIOR ART	59
A.	Ground 1: <i>Goktekin</i> Anticipates and/or Renders Obvious Claims 1-5, 7, 10-14, and 18-21	59
1.	Independent Claim 1.....	60
a.	[1pre] A system for using multiple applications on a screen of a device, comprising:	60
b.	[1a] an electronic device having a touchscreen;	60
c.	[1b] an on-screen keyboard for entering text in a first application running within said device	61
d.	[1c] wherein a first zone of said touchscreen is assigned to an interface of said first application and a second zone of said touchscreen is assigned to said keyboard; and	62
e.	[1d] wherein based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone, and	64
f.	[1e] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.....	71

2. Claim 2. The system of claim 1, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application. 72
3. Claim 3. The system of claim 1, wherein said keyboard is used with both of said applications. 76
4. Claim 4. The system of claim 1, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.....77
5. Claim 5. The system of claim 4, wherein said information includes at least one of, a text, an image, a video, a webpage and a URL. 78
6. Claim 7. The system of claim 1, wherein at least one of the applications is a messaging application.....79
7. Claim 10. The system of claim 1, wherein at least one of the applications is used for sharing at least one of text, pictures, or videos.....80
8. Claim 11. The system of claim 1, wherein said device is a mobile phone. 80
9. Independent Claim 12.....81
 - a. [12pre] A method comprising: 81
 - b. [12a] assigning a first zone of a touch screen to an interface of a first application; 81
 - c. [12b] assigning a second zone of said touch screen to an on-screen keyboard; and.....82
 - d. [12c] based on accomplishment of a condition under the control of said keyboard, activating a second application and displaying an interface of

	the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone of said touch screen and	82
e.	[12d] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touch screen.	83
10.	Claim 13. The method of claim 12, comprising using said keyboard with both of said applications.	83
11.	Claim 14. The method of claim 12, wherein at least one of said applications is one of, a text messaging application and an image sharing application.	84
12.	Claim 18. The method of claim 12, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touch screen.....	85
13.	Claim 19. The method of claim 18, wherein said information includes at least one of a text, an image, a video, a webpage and a URL.....	85
14.	Claim 20. The method of claim 12, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.	86
15.	Claim 21. The method of claim 12, wherein said touch screen is integrated within a mobile communication device.....	87
B.	Ground 2: <i>Goktekin</i> in View of <i>Sirpal</i> (Claims 2, 6, and 20).....	87
1.	Claims 2 and 20	92

2.	Claim 6. The system of claim 4, wherein said information is copied from one of said applications and pasted in the other application.	96
C.	Ground 3: <i>Goktekin</i> in View of <i>Vincent</i> (Claims 8 and 15).....	100
1.	Claim 8. The system of claim 1, wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application.	101
2.	Claim 15. The method of claim 12, wherein said interface of said second application is displayed on the touch screen by using a search application activated by providing a predefined interaction with a button of said keyboard that is related to activating said search application.	105
D.	Ground 4: <i>Goktekin</i> in View of <i>Vincent</i> and <i>Aravamudan</i> (Claims 9, 16, and 17).....	106
1.	Claim 9. The system of claim 8, wherein said search application use at least one keyword typed through said keyboard.	106
2.	Claim 16. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard.	110
3.	Claim 17. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard after said search application is activated.	111
E.	Ground 5: <i>Koch</i> Anticipates and/or Renders Obvious Claims 1-5, 7, 10-14, and 18-21	112
1.	Independent Claim 1.....	112
a.	[1pre] A system for using multiple applications on a screen of a device, comprising:	112

- b. [1a] an electronic device having a touchscreen; 113
 - c. [1b] an on-screen keyboard for entering text in a first application running within said device 113
 - d. [1c] wherein a first zone of said touchscreen is assigned to an interface of said first application and a second zone of said touchscreen is assigned to said keyboard; and 114
 - e. [1d] wherein based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone, and 116
 - f. 1[e] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.....123
- 2. Claim 2. The system of claim 1, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application. 124
 - 3. Claim 3. The system of claim 1, wherein said keyboard is used with both of said applications. 126
 - 4. Claim 4. The system of claim 1, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen. 127
 - 5. Claim 5. The system of claim 4, wherein said information includes at least one of, a text, an image, a video, a webpage and a URL. 129

6.	Claim 7. The system of claim 1, wherein at least one of the applications is a messaging application.....	130
7.	Claim 10. The system of claim 1, wherein at least one of the applications is used for sharing at least one of text, pictures, or videos.....	131
8.	Claim 11. The system of claim 1, wherein said device is a mobile phone.	131
9.	Independent Claim 12.....	132
a.	[12pre] A method comprising:	132
b.	[12a] assigning a first zone of a touch screen to an interface of a first application;	132
c.	[12b] assigning a second zone of said touch screen to an on-screen keyboard; and.....	132
d.	[12c] based on accomplishment of a condition under the control of said keyboard, activating a second application and displaying an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone of said touch screen and	133
e.	[12d] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touch screen.	133
10.	Claim 13. The method of claim 12, comprising using said keyboard with both of said applications.....	134
11.	Claim 14. The method of claim 12, wherein at least one of said applications is one of, a text messaging application and an image sharing application.	135

12.	Claim 18. The method of claim 12, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touch screen.....	136
13.	Claim 19. The method of claim 18, wherein said information includes at least one of a text, an image, a video, a webpage and a URL.....	136
14.	Claim 20. The method of claim 12, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.	137
15.	Claim 21. The method of claim 12, wherein said touch screen is integrated within a mobile communication device.....	138
F.	Ground 6: <i>Koch</i> in View of <i>Sirpal</i> (Claim 6)	138
1.	Claim 6. The system of claim 4, wherein said information is copied from one of said applications and pasted in the other application.	138
G.	Ground 7: <i>Koch</i> in View of <i>Matthews</i> (Claims 8, 9, and 15-17).....	144
1.	Claim 8. The system of claim 1, wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application.	145
2.	Claim 9. The system of claim 8, wherein said search application use at least one keyword typed through said keyboard.	149
3.	Claim 15. The method of claim 12, wherein said interface of said second application is displayed on the touch screen by using a search application activated by providing a predefined interaction with a button of said	

keyboard that is related to activating said search
application. 150

4. Claim 16. The method of claim 15, wherein said search
application use at least one keyword typed through said
keyboard. 151

5. Claim 17. The method of claim 15, wherein said search
application use at least one keyword typed through said
keyboard after said search application is activated. 151

XII. CONCLUSION 152

CLAIMS APPENDIX i

EXHIBITS CITED

Exhibit	Description
Ex. 1001	U.S. Patent No. 10,976,922 to Ghassabian (“’922 patent”)
Ex. 1004	Prosecution File History of the ’922 patent
Ex. 1006	U.S. Provisional Application No. 61/765,751
Ex. 1007	U.S. Provisional Application No. 61/766,747
Ex. 1008	U.S. Provisional Application No. 61/769,285
Ex. 1009	U.S. Provisional Application No. 61/772,066
Ex. 1010	U.S. Provisional Application No. 61/774,605
Ex. 1011	U.S. Provisional Application No. 61/777,102
Ex. 1012	U.S. Provisional Application No. 61/778,888
Ex. 1013	U.S. Provisional Application No. 61/802,690
Ex. 1014	U.S. Provisional Application No. 61/803,456
Ex. 1015	U.S. Provisional Application No. 61/804,681
Ex. 1016	U.S. Provisional Application No. 61/810,805
Ex. 1017	U.S. Provisional Application No. 61/811,756
Ex. 1018	U.S. Provisional Application No. 61/813,271
Ex. 1019	U.S. Provisional Application No. 61/814,290
Ex. 1020	U.S. Provisional Application No. 61/819,598
Ex. 1021	U.S. Provisional Application No. 61/821,331
Ex. 1022	U.S. Provisional Application No. 61/822,934

Exhibit	Description
Ex. 1023	U.S. Provisional Application No. 61/823,971
Ex. 1024	U.S. Provisional Application No. 61/825,049
Ex. 1025	U.S. Provisional Application No. 61/827,020
Ex. 1026	U.S. Provisional Application No. 61/830,114
Ex. 1027	U.S. Provisional Application No. 61/833,512
Ex. 1028	U.S. Provisional Application No. 61/833,991
Ex. 1029	U.S. Provisional Application No. 61/834,889
Ex. 1030	U.S. Provisional Application No. 61/835,704
Ex. 1031	U.S. Provisional Application No. 61/837,662
Ex. 1032	U.S. Provisional Application No. 61/838,288
Ex. 1033	U.S. Provisional Application No. 61/838,403
Ex. 1034	U.S. Provisional Application No. 61/841,360
Ex. 1035	U.S. Provisional Application No. 61/843,391
Ex. 1036	U.S. Provisional Application No. 61/846,030
Ex. 1037	U.S. Provisional Application No. 61/858,210
Ex. 1038	U.S. Provisional Application No. 61/860,396
Ex. 1039	U.S. Provisional Application No. 61/865,254
Ex. 1040	U.S. Provisional Application No. 61/866,119
Ex. 1041	U.S. Provisional Application No. 61/868,172
Ex. 1042	U.S. Provisional Application No. 61/869,722
Ex. 1043	U.S. Provisional Application No. 61/875,192

Exhibit	Description
Ex. 1044	U.S. Provisional Application No. 61/878,695
Ex. 1045	U.S. Provisional Application No. 61/879,152
Ex. 1046	U.S. Provisional Application No. 61/882,160
Ex. 1047	U.S. Provisional Application No. 61/893,291
Ex. 1048	U.S. Provisional Application No. 61/899,240
Ex. 1049	U.S. Provisional Application No. 61/902,242
Ex. 1050	U.S. Provisional Application No. 61/908,122
Ex. 1051	U.S. Provisional Application No. 61/908,248
Ex. 1052	U.S. Provisional Application No. 61/913,472
Ex. 1053	U.S. Provisional Application No. 61/920,572
Ex. 1059	U.S. Patent Application Pub. No. 2013/0234945 to Goktekin (“ <i>Goktekin</i> ”)
Ex. 1060	U.S. Patent Application Pub. No. 2012/0113023 to Koch et al. (“ <i>Koch</i> ”)
Ex. 1061	U.S. Patent Application Pub. No. 2012/0110486 to Sirpal et al. (“ <i>Sirpal</i> ”)
Ex. 1062	U.S. Patent No. 8,744,173 to Vincent et al. (“ <i>Vincent</i> ”)
Ex. 1063	U.S. Patent Application Pub. No. 2012/0215533 to Aravamudan et al. (“ <i>Aravamudan</i> ”)
Ex. 1064	U.S. Patent No. 7,340,686 to Matthews et al. (“ <i>Matthews</i> ”)
Ex. 1065	U.S. Patent No. 8,547,354 to Koch et al.
Ex. 1067	U.S. Provisional Patent Application No. 61/389,000 to Sirpal et al. (“ <i>Sirpal-000</i> ”)

Exhibit	Description
Ex. 1070	Plaintiff's Infringement Contentions in <i>Keyless Licensing LLC v. Samsung Electronics America, Inc.</i> , No. 2:24-cv-00464-JRG (E.D. Tex. Oct. 9, 2024)
Ex. 1072	Johan Himberg et al., <i>On-line Personalization of a Touch Screen Based Keyboard</i> , IUI '03: Proceedings of the 8th Int'l Conference on Intelligent User Interfaces (Jan. 12-15, 2003), Association for Computing Machinery, pp. 77-84, https://doi.org/10.1145/604045.604061
Ex. 1073	Eric S. Missimer et al., <i>Customizable Keyboard</i> , ASSETS '10: Proceedings of the 12th Int'l ACM SIGACCESS Conference on Computers and Accessibility (Oct. 25-27, 2010), Association for Computing Machinery, pp. 249-250, https://doi.org/10.1145/1878803.1878855
Ex. 1077	U.S. Patent Application Pub No. 2005/0215278 to Liow et al. (" <i>Liow</i> ")
Ex. 1078	U.S. Patent No. 7,912,700 to Bower et al. (" <i>Bower</i> ")

I, Dr. Benjamin B. Bederson, Ph.D., declare as follows:

I. INTRODUCTION

1. I have been retained by Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. (collectively “Petitioners”), as an independent expert consultant in this proceeding before the United States Patent and Trademark Office.

2. I am over 21 years of age and, if I am called upon to do so, I would be competent to testify as to the matters set forth herein.

3. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of any proceeding.

4. I understand that this proceeding involves U.S. Patent No. 10,976,922 (“the ’922 patent,” Ex. 1001). The application for the ’922 was filed January 22, 2017, as U.S. Patent Application No. 15/412,026 (“the ’026 application”). The ’922 patent claims priority to dozens of provisional applications, with the earliest (U.S. Provisional Application No. 61/765,751 (“the ’751 application”)) filed February 17, 2013. Ex. 1001, 1-2.

5. I have been asked by Petitioners to provide my opinion whether the claims of the ’922 patent would have been anticipated and/or obvious to a person of ordinary skill in the art (“POSITA”) at the time of the earliest effective priority

date of the '922 patent. As part of that analysis, I have been asked to consider whether the '751 application discloses the subject matter of the patent claims, which I understand is a requirement for the '922 patent to be entitled to priority as of the '751 patent application's priority date. As discussed below in Section VII.C, it is my opinion that the '751 patent application does not disclose the subject matter of the claims sufficiently to demonstrate to a POSITA that the '922 patent inventor was in possession of the claimed invention at that time. In view of that opinion, I have been instructed to assume a later priority date—December 24, 2013.¹ My opinions are set forth below.

6. Throughout this declaration, I refer to specific pages, figures, and/or line numbers of various exhibits. These citations are illustrative and are not intended to suggest that they are the only support for the propositions for which they are cited.

¹ I provide no opinion whether the '922 patent is entitled to this priority date. To the extent a priority date of February 17, 2013, would apply, that would not change my opinion that claims 1-21 of the '922 patent would have been invalid as anticipated and/or obvious at least under Grounds 5-7 because I understand that each applied reference qualified as prior art as of that earlier date.

II. SUMMARY OF OPINIONS

7. This declaration considers claims 1-21 of the '922 patent. Below, I set forth the opinions I have formed, the conclusions I have reached, and the bases for these opinions and conclusions. I believe the statements contained in this declaration to be true and correct to the best of my knowledge.

8. Based on my experience, knowledge of the art at the time of the applicable priority date (I was instructed to assume a priority date of December 24, 2013), it is my opinion that claims 1-21 of the '922 patent would have been anticipated and/or obvious to a POSITA based on the asserted grounds discussed below.

9. I am being compensated for my time at my normal hourly rate. My compensation is in no way contingent upon the nature of my findings, the presentation of my findings in testimony, or the outcome of this proceeding.

III. QUALIFICATIONS AND BACKGROUND

10. I believe that I am well qualified to serve as a technical expert in this matter based upon my qualifications, discussed in detail below. A copy of my curriculum vitae is included as Exhibit 1003.

11. I am competent to prepare this declaration.

12. I received a Bachelor of Science degree in Computer Science with a minor in Electrical Engineering from Rensselaer Polytechnic Institute ("RPI") in

1986. I received a Master of Science degree and a Ph.D. in Computer Science from New York University (“NYU”) in 1989 and 1992, respectively.

13. Since 1998, I have been a Professor of Computer Science at the University of Maryland (“UMD”), where I have had joint appointments at the Institute for Advanced Computer Studies and the College of Information Studies (Maryland’s “iSchool”) and am currently Professor Emeritus. I was also Associate Provost of Learning Initiatives and Executive Director of the Teaching and Learning Transformation Center from 2014 to 2018. I am a member and previous director of the Human-Computer Interaction Lab (“HCIL”), the oldest and one of the best known Human-Computer Interaction research groups in the country.

14. I am also co-founder and co-director of the International Children’s Digital Library (“ICDL”), a web site launched in 2002 that provides the world’s largest collection of freely available online children’s books from around the world with an interface aimed to make it easy for children and adults to search and read children’s books online. I was also co-founder and Chief Scientist of Zumobi, Inc., from 2006 to 2014, a Seattle-based startup that is a publisher of content applications and advertising platforms for smartphones. I was also co-founder and prior Chief Technology Officer of Hazel Analytics, a data analytics company whose product sends alerts in warranted circumstances. In addition, I have for more than 25 years consulted for numerous companies in the area of user

interfaces, including those with touchscreens, including EPAM, Logitech, Microsoft, the Palo Alto Research Center, Sony, Lockheed Martin, and NASA Goddard Space Flight Center.

15. For more than 30 years, I have studied, designed, and worked in the field of computer science and human-computer interaction. My experience includes 30 years of teaching and research, with research interests in human-computer interaction and the software and technology underlying today's interactive computing systems. This includes the design and implementation of user interfaces and software applications using a wide range of technologies, including web servers and websites, databases, embedded systems, and mobile devices, including smartphones and PDAs. I have combined my hardware and software skills throughout my career in Human-Computer Interface research, building various interactive electrical and mechanical systems that couple with software to provide an innovative user experience.

16. At UMD, my research has been in the area of Human-Computer Interaction ("HCI"), a field that relates to the development and understanding of computing systems to serve users' needs. Researchers in this field are focused on making universally usable, useful, efficient, and appealing systems to support people in their wide range of activities. My approach is to balance the development of innovative technology that serves people's practical needs. Example systems

following this approach that I have built include Pad++ (1994 software for zoomable user interfaces), KidPad (1997 software to support children collaboratively writing stories), PadPrints (1998 software to graphically show interactive web browsing histories), PhotoMesa (2001 software for end users to browse personal photos), Pocket PhotoMesa (2004 software for browsing of personal photos on a mobile device), DateLens (2002 software for end users to use their mobile devices to efficiently access their calendar information), LaunchTile (2005 “home screen” software for mobile devices to allow users to navigate apps in a zoomable environment), SpaceTree (2001 software for end users to efficiently browse very large hierarchies), ICDL (as described above), and StoryKit (a 2009 iPhone app for children to create stories).

17. Many of my projects involved processing user inputs and interpreting them to determine what command they controlled. For example, in 2001, I wrote a paper² that describes PhotoMesa, a zoomable image browser using a novel 2D layout algorithm I called “quantum treemaps” to position the images on the screen

² Benjamin B. Bederson, *PhotoMesa: A Zoomable Image Browser Using Quantum Treemaps and Bubblemaps*, UIST '01: Proceedings of the 14th Annual ACM Symposium on User Interface Software and Technology (Nov. 2001), pp. 71-80, <https://doi.org/10.1145/502348.502359>.

in a way that attempted to fill the screen while keeping groups of related images together. As indicated in the figure below, PhotoMesa had a number of interactions that controlled the display of many hundreds of images at a time. Users could zoom in and out, pan from side to side, and show larger thumbnails through a combination of mouse clicks, drags, and hovers.



Figure 1: Screen snapshot of PhotoMesa with over 500 images in 17 groups.

18. I worked on a wide range of touchscreen Graphical User Interfaces for mobile devices. In 2004, I wrote a paper³ describing an adaptation of PhotoMesa to a touchscreen mobile device called “Pocket PhotoMesa.”

³ Amir Khella and Benjamin B. Bederson, *Pocket PhotoMesa: a Zoomable Image Browser for PDAs*, MUM '04: Proceeding of the 3rd International Conference on



Figure 3: Three views of Pocket PhotoMesa at different zoom levels (www.photomesa.com).

19. For example, in 2004-2005, I wrote software called LaunchTile, which included a Graphical User Interface for touchscreen mobile devices designed for one-handed use. LaunchTile, described in a 2005 paper,⁴ allowed zooming and scrolling of multiple applications on a handheld touchscreen PDA. The interface offered a grid of applications that could be zoomed and scrolled. It

Mobile and Ubiquitous Multimedia (Oct. 2004), pp. 19-24,

<https://doi.org/10.1145/1052380.1052384>.

⁴ Amy K. Karlson, Benjamin B. Bederson, and John SanGiovanni, *AppLens and LaunchTile: two designs for one-handed thumb use on small devices*, CHI '05: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (2005), Association for Computing Machinery, New York, NY, USA, pp. 201-210, <https://doi.org/10.1145/1054972.1055001>.

included several different methods of navigating, including gestures as shown in the following figure from that paper where scrolling continued after a finger was lifted from the touchscreen, and then slowed to a stop.



Figure 2. Screen area accessible with one hand.

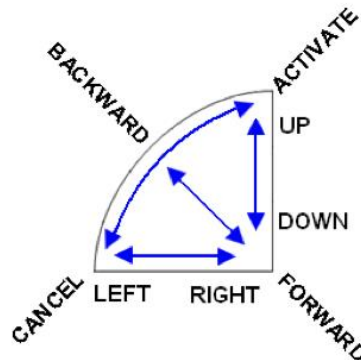


Figure 3. The gesture set.

20. LaunchTile led to my creation of Zumobi in 2006, where I was responsible for investigating new software platforms and developing new user interface designs that provide efficient and engaging interfaces to permit end users to access a wide range of content on mobile platforms (including the iPhone and Android-based devices). For example, I designed and implemented software called “Ziibii,” a “river” of news for iPhone; software called “ZoomCanvas,” a zoomable user interface for several iPhone apps; and iPhone apps including “Inside Xbox” for Microsoft and Snow Report for REI.

21. In 2006, I wrote a paper⁵ studying the speed and accuracy of people touching different locations on a mobile touchscreen device. That showed which portions of the screen people could most accurately tap when holding the device with one hand and tapping with their thumb of that hand. The following figure shows results showing targets that are about 1cm square offer a good trade-off in terms of size and speed.

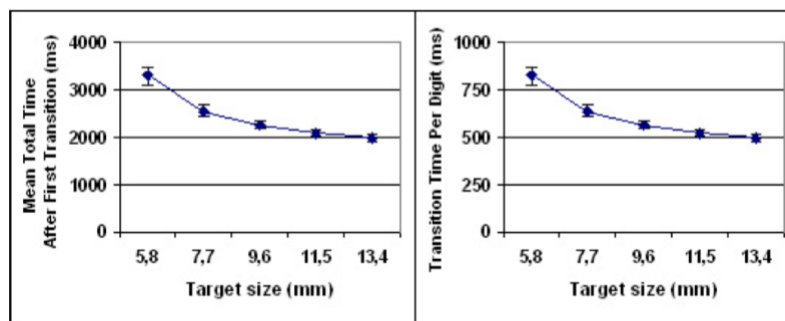


Figure 7. (a) Mean total time between the release of the first digit in the sequence and ‘END’ key for each key size in serial tap study. (b) Mean transition time between taps after the first transition.

⁵ Pekka Parhi, Amy K. Karlson, and Benjamin B. Bederson, *Target size study for one-handed thumb use on small touchscreen devices*, MobileHCI '06: Proceedings of the 8th Conference on Human-Computer Interaction with Mobile Devices and Services (2006), Association for Computing Machinery, New York, NY, USA, pp. 203-210, <https://doi.org/10.1145/1152215.1152260>.

22. In a 2008 paper,⁶ I described an approach to allow unmodified legacy touchscreen applications to run on large touchscreen mobile devices while improving the ability for users to use them with one hand. This figure from that paper illustrates the basic approach.

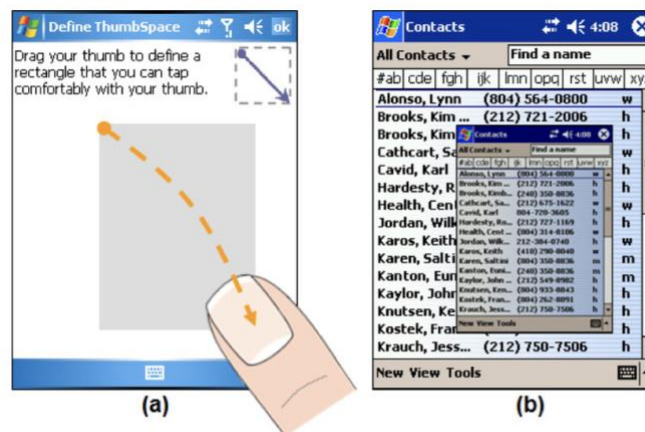


Figure 1. (a) Defining a ThumbSpace. (b) ThumbSpace in use.

23. I also wrote a 2010 paper⁷ describing multi-modal text entry and selection on a touchscreen mobile device. In particular, the paper describes text

⁶ Amy K. Karlson and Benjamin B. Bederson, *One-handed touchscreen input for legacy applications*, CHI '08: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (2008), Association for Computing Machinery, New York, NY, USA, pp. 1399-1408, <https://doi.org/10.1145/1357054.1357274>.

⁷ David Dearman, Amy Karlson, Brian Meyers, and Ben Bederson, *Multi-modal text entry and selection on a mobile device*, GI '10: Proceedings of Graphics

entry using touch on a touchscreen, tilting the device, voice recognition of speech, and foot tap. It goes on to describe the results of a study of people using these four input techniques to compare their speed and accuracy

24. My work has been published extensively in more than 160 technical publications, and I have given about 100 invited talks, including 9 keynote lectures. I have won a number of awards, including the Janet Fabri Memorial Award for Outstanding Doctoral Dissertation for my Ph.D. work in robotics and computer vision as well as the Brian Shackel Award for “outstanding contribution with international impact in the field of HCI” in 2007, and the Social Impact Award in 2010 from the Association for Computing Machinery’s (“ACM”) Special Interest Group on Computer Human Interaction (“SIGCHI”). ACM is the primary international professional community of computer scientists, and SIGCHI is the primary international professional HCI community. I have been honored by both professional organizations. I am an “ACM Distinguished Scientist,” which “recognizes those ACM members with at least 15 years of professional experience and 5 years of continuous Professional Membership who have achieved significant accomplishments or have made a significant impact on the computing field.” I am

Interface 2010 (2010), Canadian Information Processing Society, CAN, pp. 19-26, <https://dl.acm.org/doi/10.5555/1839214.1839219>.

a member of the “CHI Academy,” which is described as follows: “The CHI Academy is an honorary group of individuals who have made substantial contributions to the field of human-computer interaction. These are the principal leaders of the field, whose efforts have shaped the disciplines and/or industry, and led the research and/or innovation in human-computer interaction.” The criteria for election to the CHI Academy are: (1) cumulative contributions to the field; (2) impact on the field through development of new research directions and/or innovations; and (3) influence on the work of others. I have received two “Test of Time” awards from IEEE InfoVis for my 2001 and 2002 work on visualizing hierarchies, including those containing digital photos.⁸

25. I have appeared on radio shows numerous times to discuss issues relating to user interface design and people’s use and frustration with common technologies, web sites, and mobile devices. My work has been discussed and I have been quoted by mainstream media around the world over 120 times, including by the NEW YORK TIMES, the WALL STREET JOURNAL, the WASHINGTON POST, NEWSWEEK, the SEATTLE POST-INTELLIGENCER, the INDEPENDENT, LE MONDE,

⁸ <https://ieevis.org/year/2021/info/awards/test-of-time-awards>;

<https://ieevis.org/year/2022/info/awards/test-of-time-awards>.

NPR's *All Things Considered*, NEW SCIENTIST MAGAZINE, and MIT's TECHNOLOGY REVIEW.

26. I have designed, programmed, and publicly deployed dozens of user-facing software products that have cumulatively had millions of users. I am the co-inventor of 14 U.S. patents and 20 U.S. patent applications.

IV. MATERIALS CONSIDERED

27. In forming my opinions, I have reviewed the following documents, and any other document cited in this declaration.

Exhibit	Description
Ex. 1001	U.S. Patent No. 10,976,922 to Ghassabian (“’922 patent”)
Ex. 1004	Prosecution File History of the ’922 patent
Ex. 1006	U.S. Provisional Application No. 61/765,751
Ex. 1007	U.S. Provisional Application No. 61/766,747
Ex. 1008	U.S. Provisional Application No. 61/769,285
Ex. 1009	U.S. Provisional Application No. 61/772,066
Ex. 1010	U.S. Provisional Application No. 61/774,605
Ex. 1011	U.S. Provisional Application No. 61/777,102
Ex. 1012	U.S. Provisional Application No. 61/778,888
Ex. 1013	U.S. Provisional Application No. 61/802,690
Ex. 1014	U.S. Provisional Application No. 61/803,456
Ex. 1015	U.S. Provisional Application No. 61/804,681

Exhibit	Description
Ex. 1016	U.S. Provisional Application No. 61/810,805
Ex. 1017	U.S. Provisional Application No. 61/811,756
Ex. 1018	U.S. Provisional Application No. 61/813,271
Ex. 1019	U.S. Provisional Application No. 61/814,290
Ex. 1020	U.S. Provisional Application No. 61/819,598
Ex. 1021	U.S. Provisional Application No. 61/821,331
Ex. 1022	U.S. Provisional Application No. 61/822,934
Ex. 1023	U.S. Provisional Application No. 61/823,971
Ex. 1024	U.S. Provisional Application No. 61/825,049
Ex. 1025	U.S. Provisional Application No. 61/827,020
Ex. 1026	U.S. Provisional Application No. 61/830,114
Ex. 1027	U.S. Provisional Application No. 61/833,512
Ex. 1028	U.S. Provisional Application No. 61/833,991
Ex. 1029	U.S. Provisional Application No. 61/834,889
Ex. 1030	U.S. Provisional Application No. 61/835,704
Ex. 1031	U.S. Provisional Application No. 61/837,662
Ex. 1032	U.S. Provisional Application No. 61/838,288
Ex. 1033	U.S. Provisional Application No. 61/838,403
Ex. 1034	U.S. Provisional Application No. 61/841,360
Ex. 1035	U.S. Provisional Application No. 61/843,391
Ex. 1036	U.S. Provisional Application No. 61/846,030

Exhibit	Description
Ex. 1037	U.S. Provisional Application No. 61/858,210
Ex. 1038	U.S. Provisional Application No. 61/860,396
Ex. 1039	U.S. Provisional Application No. 61/865,254
Ex. 1040	U.S. Provisional Application No. 61/866,119
Ex. 1041	U.S. Provisional Application No. 61/868,172
Ex. 1042	U.S. Provisional Application No. 61/869,722
Ex. 1043	U.S. Provisional Application No. 61/875,192
Ex. 1044	U.S. Provisional Application No. 61/878,695
Ex. 1045	U.S. Provisional Application No. 61/879,152
Ex. 1046	U.S. Provisional Application No. 61/882,160
Ex. 1047	U.S. Provisional Application No. 61/893,291
Ex. 1048	U.S. Provisional Application No. 61/899,240
Ex. 1049	U.S. Provisional Application No. 61/902,242
Ex. 1050	U.S. Provisional Application No. 61/908,122
Ex. 1051	U.S. Provisional Application No. 61/908,248
Ex. 1052	U.S. Provisional Application No. 61/913,472
Ex. 1053	U.S. Provisional Application No. 61/920,572
Ex. 1059	U.S. Patent Application Pub. No. 2013/0234945 (“ <i>Goktekin</i> ”)
Ex. 1060	U.S. Patent Application Pub. No. 2012/0113023 (“ <i>Koch</i> ”)
Ex. 1061	U.S. Patent Application Pub. No. 2012/0110486 to Sirpal et al. (“ <i>Sirpal</i> ”)

Exhibit	Description
Ex. 1062	U.S. Patent No. 8,744,173 to Vincent et al. (“ <i>Vincent</i> ”)
Ex. 1063	U.S. Pub. No. 2012/0215533 to Aravamudan et al. (“ <i>Aravamudan</i> ”)
Ex. 1064	U.S. Patent No. 7,340,686 to Matthews et al. (“ <i>Matthews</i> ”)
Ex. 1065	U.S. Patent No. 8,547,354 to Koch et al.
Ex. 1067	U.S. Provisional Patent Application No. 61/389,000 to Sirpal et al. (“ <i>Sirpal-000</i> ”)
Ex. 1070	Plaintiff’s Infringement Contentions in <i>Keyless Licensing LLC v. Samsung Electronics America, Inc.</i> , No. 2:24-cv-00464-JRG (E.D. Tex. Oct. 9, 2024)
Ex. 1072	Johan Himberg et al., <i>On-line Personalization of a Touch Screen Based Keyboard</i> , IUI ’03: Proceedings of the 8th Int’l Conference on Intelligent User Interfaces (Jan. 12-15, 2003), Association for Computing Machinery, pp. 77-84, https://doi.org/10.1145/604045.604061
Ex. 1073	Eric S. Missimer et al., <i>Customizable Keyboard</i> , ASSETS ’10: Proceedings of the 12th Int’l ACM SIGACCESS Conference on Computers and Accessibility (OCT. 25-27, 2010), Association for Computing Machinery, pp. 249-250, https://doi.org/10.1145/1878803.1878855
Ex. 1077	U.S. Patent Application Pub No. 2005/0215278 to Liow et al. (“ <i>Liow</i> ”)
Ex. 1078	U.S. Patent No. 7,912,700 to Bower et al. (“ <i>Bower</i> ”)

28. I have also relied on my education, experience, research, training, and knowledge in the relevant art, and my understanding of any applicable legal principles described in this declaration.

29. All of the opinions contained in this declaration are based on the documents I reviewed and my knowledge and professional judgment. My opinions have also been guided by my understanding of how a POSITA would have understood the claims of the '922 patent at the time of the earliest claimed priority date.

30. I reserve the right to supplement and amend any of my opinions in this declaration based on documents, testimony, and other information that becomes available to me after the date of this declaration.

V. LEGAL STANDARDS

31. I am not a lawyer. My understanding of the legal standards to apply in reaching the conclusions in this declaration is based on discussions with counsel for Petitioners, my experience applying similar standards in other patent-related matters, and my reading of the documents submitted in this proceeding. In preparing this declaration, I have tried to faithfully apply these legal standards to the challenged claims.

32. I have been informed that there are two ways in which prior art may render a patent claim unpatentable. First, I have been informed that the prior art can “anticipate” a claim. Second, I have been informed that the prior art can render a claim “obvious” to a POSITA. I understand that a claim is patentable if it was not

anticipated and would not have been obvious by the prior art at the effective filing date of the patent.

33. I have been informed that a dependent claim is a patent claim that refers back to another patent claim. I have been informed that a dependent claim includes all of the limitations of the claim to which it refers.

34. I have been asked to provide my opinions as to whether the cited prior art anticipates or renders obvious claims 1-21 of the '922 patent from the perspective of a POSITA at the '922 patent's earliest claimed priority date in December 24, 2013, as described in more detail below.

35. I have been informed that in *inter partes* review proceedings, such as this one, the party challenging the patent bears the burden of proving unpatentability by a preponderance of the evidence. I understand that a preponderance of the evidence means "more likely than not."

36. For purposes of this declaration, I have been asked to provide my opinions on issues regarding unpatentability. I have been informed of the following legal standards, which I have applied in forming my opinions.

A. Level of Ordinary Skill

37. I have been informed that a POSITA is determined by considering several factors, including the (i) type of problems encountered in the art; (ii) prior-art solutions to those problems; (iii) rapidity with which innovations are made;

(iv) sophistication of the technology; and (v) educational level of active workers in the field.

38. I have been instructed to assume a POSITA is not a specific real individual, but rather a hypothetical individual having the qualities reflected by the factors discussed above.

B. Legal Standards for Determining Priority Date

39. I understand that the “priority date” or “effective filing date” of a patent is the date on which it is filed, or the date on which an earlier-filed U.S. or international patent application was filed if the patentee claims the benefit of priority to that earlier-filed application.

40. I understand that in the patent application process, the applicant may keep the originally filed claims or change the claims between the time the patent application is first filed and the time a patent is issued. An applicant may amend the claims or add new claims. These changes may narrow or broaden the scope of the claims. I understand that a patent application is entitled to the benefit of the filing date of an earlier-filed application only if the disclosure of the earlier application provides support for the claims of the later application as required by the “written description” requirement of 35 U.S.C. § 112. I further understand that for a patent application to have an adequate written description of the invention, it

must show the inventor was in possession of the invention at the time the patent application was filed.

41. When determining whether a specification of a patent application contains adequate written description of the claimed invention, I understand that one must make an objective inquiry into the four corners of the specification from the perspective of a POSITA. Further, I understand that the standard for written description is stricter than the standard for determining whether or not a patent claim would have been obvious based on the prior art.

42. In particular, the question for purposes of written description is not merely whether the claimed invention is an obvious variant of what the specification discloses. Instead, the application itself must describe the invention, and do so in sufficient detail that a POSITA can clearly conclude that the inventor invented the claimed invention as of the date when the application was filed.

43. Similarly, I understand the issue of written description is separate from the question of “enablement” (i.e., whether a specification allows a POSITA to practice the claimed invention without undue experimentation). A specification may adequately enable a claimed invention, yet fail to provide written description support.

44. Finally, I understand that the standard for whether or not a disclosure is sufficient to provide written description support for a claim is different from the

standard for whether a disclosure anticipates a claim. To support a claim, the description must be sufficient to convey to a POSITA that the inventors were in possession of the full scope of the claimed subject matter. By contrast, a description anticipates a claim if it discloses even a single species within the scope of the claim. Thus, in the case of “genus” claims covering two or more different species, I understand that there can be situations in which a given disclosure is sufficient to anticipate the claim even though that same disclosure is not adequate to support the claim and entitle the inventors to an earlier priority date.

45. I understand that in order to claim priority to an application through a chain of applications, every single application in the chain (going back to the particular application on which the inventors want to rely) needs to support the claim as a matter of written description. In other words, each application in the chain must allow a POSITA to discern that the inventors were in possession of the claimed invention at the time of the application. It is not sufficient under this standard for the disclosure in the specification to render the claimed invention obvious.

C. Prior Art

46. I have been advised and understand the information used to evaluate whether an invention was new and not obvious when made is generally referred to as “prior art.” I understand that prior art includes patents and printed publications

that existed before the earliest claimed priority date or the earliest filing date of the patent (which I have been informed is sometimes called the “effective filing date”). I have been informed and understand that a patent or published patent application is prior art if it was filed before the earliest filing date of the claimed invention and that a printed publication is prior art if it was publicly available before the earliest filing date.

D. Anticipation

47. I have been informed that under 35 U.S.C. § 102, a patent claim is unpatentable for anticipation if the claimed subject matter was patented or described in a printed publication before the effective filing date of the claimed invention. I have been informed that this is referred to as unpatentability by anticipation. I have been informed that a patent claim is anticipated under § 102 if a single prior-art reference discloses all limitations of the claimed invention.

E. Obviousness

48. I have been informed that for obviousness under 35 U.S.C. § 103, a patent claim is unpatentable if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a POSITA to which said subject matter pertains at the time the invention was made. I have been informed that this is referred to as unpatentability by obviousness.

49. I have been informed that a proper obviousness analysis includes the following:

- a. Determining the scope and content of the prior art;
- b. Ascertaining the differences between the prior art and the claims at issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Considering evidence of secondary indicia of nonobviousness (if available).

50. I have been informed that the relevant time for considering whether a claim would have been obvious to a POSITA is the time of invention. For my obviousness analysis, counsel for Petitioners instructed me to assume that the date of invention for the challenged claims is December 24, 2013. My opinions would not change if I assumed a later date of invention.

51. I have been informed that a reference may be modified or combined with other references or with a POSITA's own knowledge if the person would have found the modification or combination obvious. I have also been informed that a POSITA is presumed to know all the relevant prior art, and the obviousness analysis may take into account the inferences and creative steps that a POSITA would employ.

52. I have been informed that whether a prior-art reference renders a patent claim obvious is determined from the perspective of a POSITA. I have also been informed that, while there is no requirement that the prior art contain an express suggestion to combine known elements to achieve the claimed invention, and while a suggestion to combine known elements to achieve the claimed invention may come from the prior art as a whole or individually and may consider the inferences and creative steps a POSITA would employ, as filtered through the knowledge of one skilled in the art, obviousness grounds cannot be sustained by mere conclusory statements and must include some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

53. In determining whether a prior-art reference could have been combined with another prior-art reference or other information known to a POSITA, I have been informed that the following principles may be considered:

- a. A combination of familiar elements according to known methods is likely to be obvious if it yields predictable results;
- b. The substitution of one known element for another is likely to be obvious if it yields predictable results;
- c. The use of a known technique to improve similar items or methods in the same way is likely to be obvious if it yields predictable results;

- d. The application of a known technique to a prior-art reference that is ready for improvement to yield predictable results;
- e. Any need or problem known in the field and addressed by the reference can provide a reason for combining the elements in the manner claimed;
- f. A POSITA often will be able to fit the teachings of multiple references together like a puzzle; and
- g. The proper analysis of obviousness requires a determination of whether a POSITA would have a “reasonable expectation of success”—but not “absolute predictability” of success—in achieving the claimed invention by combining prior-art references.

54. I have been informed that, when a work is available in one field, design alternatives and other market forces can prompt variations of it, either in the same field or in another. I have been informed that if a POSITA could have implemented a predictable variation and would have seen the benefit of doing so, that variation is likely to have been obvious. I have been informed that, in many fields, there may be little discussion of obvious combinations, and in these fields, market demand—not scientific literature—may drive design trends. I have been informed that, when there was a design need or market pressure and there are a

finite number of predictable solutions, a POSITA would have had a good reason to pursue those known options.

55. I have been informed that the law permits the application of “common sense” in examining whether a claimed invention would have been obvious to a person skilled in the art. For example, I have been informed that combining familiar elements according to known methods and in a predictable way may suggest obviousness when such a combination would yield nothing more than predictable results. I understand, however, that a claim is not obvious merely because every claim element is disclosed in the prior art and that a party asserting obviousness must still provide a specific motivation to combine or modify the reference(s) as recited in the claims and explain why a person skilled in the art would have reasonably expected to succeed in doing so.

56. I have been informed that there is no rigid rule that a reference or combination of references must contain a “teaching, suggestion, or motivation” to combine references. But I also understand that the “teaching, suggestion, or motivation” test can be a useful guide in establishing a rationale for combining elements of the prior art. I have been informed that this test poses the question as to whether there is an express or implied teaching, suggestion, or motivation to combine prior-art elements in a way that realizes the claimed invention, and that it seeks to counter impermissible hindsight analysis.

57. I am not aware of any evidence of secondary considerations that would support a determination of non-obviousness of the claimed subject matter in the '922 patent.

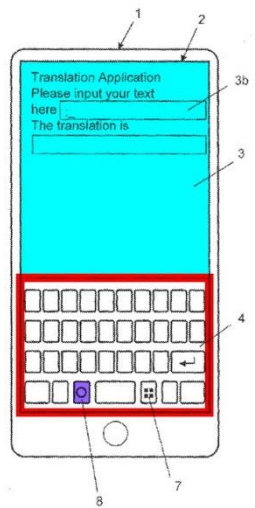
58. I have been informed that, in an obviousness analysis, prior art must be analogous prior art to the patent being considered. I have been informed that a prior-art reference is considered to be analogous, or in the same field of art, if the reference is either (1) in the same field of endeavor as the challenged patent, regardless of the problems the challenged patent and the prior art address; or (2) reasonably pertinent to a particular problem being solved by the challenged patent.

VI. TECHNOLOGY BACKGROUND AND STATE OF THE PRIOR ART

59. By 2012, before the '922 patent was filed, the art recognized that “[t]he use of touch-sensitive surfaces as input devices for computers and other electronic computing devices ha[d] increased significantly in recent years,” and such devices included “touch pads and touch screen displays,” which were “widely used to manipulate user interface objects on a display.” *Koch*, ¶[0004].

60. A “soft keyboard[]” was typically included as a user interface object for devices using touchscreen displays. *Koch*, ¶[0005]. Ordinarily, the system caused the **keyboard** to appear (or, in the words of the '922 patent, the system “assigned” the keyboard) to the bottom portion of the touchscreen, with an

application's graphical user interface at the top portion, as illustrated below in figures reproduced from *Goktekin* (Ex. 1059) and *Koch* (Ex. 1060). See *Goktekin*, ¶[0046] (describing Fig. 1a); *Koch*, ¶¶[0231]-[0232] (describing Fig. 5A).⁹



Goktekin, Fig. 1a (annotated)



Koch, Fig. 5A (annotated)

61. The foregoing configuration was standard due to ergonomics—a user's thumbs and/or fingers can manipulate objects appearing on the bottom of the screen (e.g., a keyboard) while allowing the user to view objects appearing at the top of the screen (e.g., one or more active applications). Additionally, the configuration echoes a user's likely experiences using other computing devices,

⁹ Note that throughout this declaration, I include color-coded highlighting of various terms (such as in the preceding sentence) and corresponding portions of figures (such as below) to illustrate their relationship.

such as personal computers, in which the user manipulates a keyboard below a screen or monitor.

62. The art had long sought to improve on-screen keyboard design and function. For example, by 2003, a full decade before the '922 patent was filed, the art recognized that “user expectations for usability and personalization along with decreasing size of handheld devices challenge traditional keypad layout design.” Ex. 1072 (Himberg), 1 (proceedings p. 77). In that study, the authors considered adapting to a user’s needs and preferences by changing the “shape, size, and position” of an on-screen keypad. Ex. 1072, 5 (proceedings p. 81).

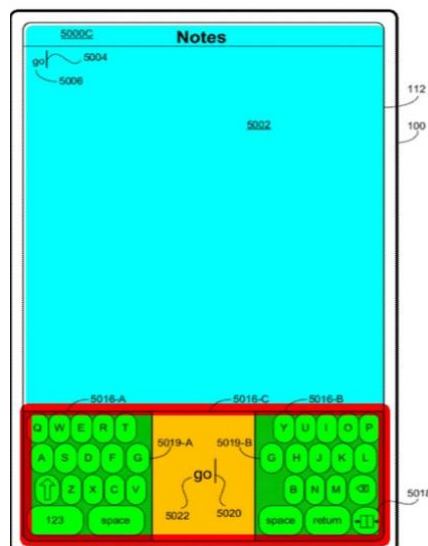
63. By 2010, researchers investigated a “Customizable Keyboard,” which is “an on-screen keyboard design to be flexible and expandable” and “allows the user to create a layout that is accommodating to the user’s needs.” Ex. 1073 (Missimer), 1 (proceedings p. 249). Among other options, the Customizable Keyboard allowed a user to “arrange the on-screen keyboard to occupy separate sections of the computer screen.” *Id.* Further, the Customizable Keyboard allowed keyboard buttons to launch other software applications and/or perform other functions. For example, “[p]rogram shortcut buttons can be linked to an executable [file such that] [w]hen the button is activated, Customizable Keyboard starts the linked program.” Ex. 1073, 2 (proceedings p. 250). Specifically, a keyboard button can “open the default Internet browser to a specific website.” Ex. 1073, 2

(proceedings p. 250). Relatedly, the Customizable Keyboard included “Macro Buttons” to “play a .wav file,” “[a] Twitter Button [that] allows a user to send the contents of a Customizable Keyboard’s character buffer as a Twitter® tweet,” and “Character Buffer Buttons [that] can cause the contents of the character buffer to be spoken with a text-to-speech module and/or pasted into another program.”

Ex. 1073, 2 (proceedings p. 250). Thus, long before the ’922 patent, the art disclosed to rearrange keyboards and provide the feature that a keyboard can launch an application, including an Internet browser (which was well understood to include search functionality).

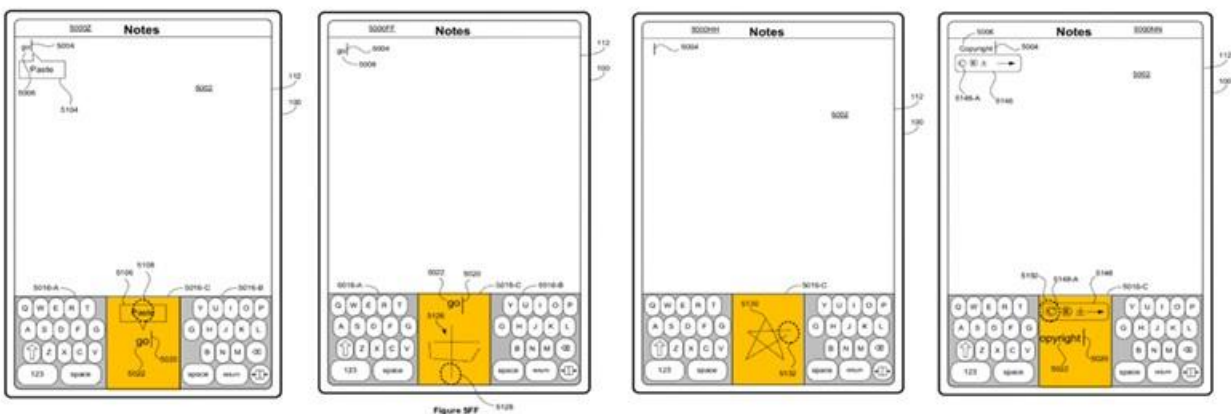
64. Two years later, the *Koch* reference demonstrated the art’s understanding that on-screen soft keyboards were highly configurable, and permitted “manipulations includ[ing] selecting a soft keyboard, *adjusting the position and/or size of the soft keyboard*, and activating keys in the soft keyboard.” *Koch*, ¶[0005] (emphasis added). There were several known reasons to selectively reduce a keyboard’s size. For example, from references such as *Koch*, the art disclosed that “two-thumb typing on an unsplit soft keyboard” could pose challenges on a larger-screen device, such as a “table-sized portable device.” *Koch*, ¶[0006]. As a solution, *Koch* disclosed reducing and splitting the **keyboard**, which “makes two-thumb typing ... faster and more efficient by letting a user easily activate certain **keys on the right side of a split keyboard** with a left thumb (and

conversely, letting a user easily activate certain **keys on the left side of a split keyboard** with a right thumb), thereby creating a more efficient human-machine interface.” *Koch*, ¶[0354] (also disclosing that the resulting increased efficiency “conserves power and increases the time between battery charges”). As another example, *Koch* taught that the space between two halves of a reduced-size keyboard could be used as an interface for another application (“**center area 5016-C**”). See *Koch*, ¶[0235] (“Integrated input area 5016 includes left split keyboard portion 5016-A and right split keyboard portion 5016-B, and center area 5016-C between split keyboard portions 5016-A and 5016-B.”). The configuration of *Koch*’s **reduced keyboard** and **center area application (5016-C)** is illustrated below. For context, I also highlight the **zone** previously occupied by the original keyboard, as well as the **upper application area** (illustrating a “Notes” application) below.

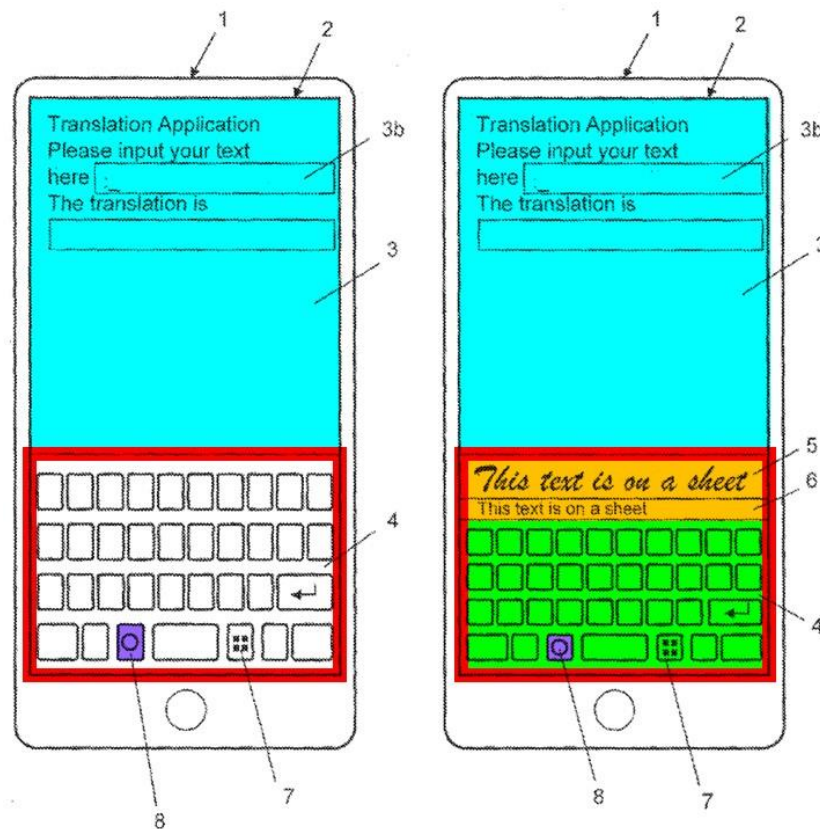


Koch, Fig. 5C (annotated)

65. Koch's center area application (5016-C) assists in performing several tasks, including (1) "text editing controls (e.g., icons, or graphical or user interface objects for selecting, cutting, copying, and/or pasting text)" (illustrated in Figs. 5Z-5AA); (2) a handwriting recognition application (Figs. 5FF-5GG); (3) a drawing application (Figs. 5HH-5II); and (4) a Unicode character application (Figs. 5NN-5OO). *Koch*, ¶¶[0261]-[0262], [0266]-[0267], [0272]-[0273], [0380]-[0381], [0387]-[0389], [0394]-[0395]. Those exemplary functionalities are illustrated in excerpts from Figures 5Z, 5FF, 5HH, and 5NN, annotated below.

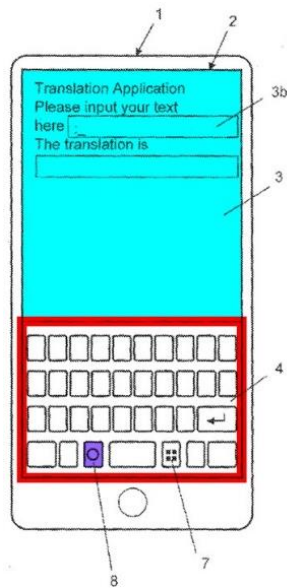


input via the keyboard and via the camera with OCR implemented in a text input program module would be greatly desirable. It would allow the same keyboard input functionality as before with a standard keyboard input module but also the additional camera based text input possibility.”). *Goktekin* specifically highlighted the benefits of ensuring that the **reduced keyboard** and **second application (camera mode) interface** occupy no more space than the **original keyboard**, as illustrated below. *Goktekin*, ¶[0047] (“[T]he size of any displayed fields in the keyboard mode as well as in the camera mode is always kept the same, such that the used size of the touch screen is kept the same as that of the original keyboard module, such that the original keyboard module can be replaced by the multimodal text input module without overlapping the application more than originally planned by a usage of the original keyboard module.”).

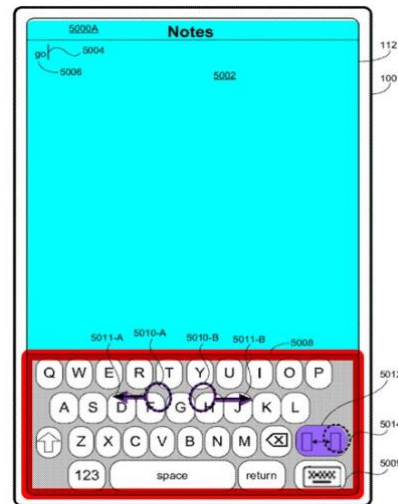


Goktekin, Figs. 1a-1b (annotated)

67. Finally, the art also recognized that switching to a reduced keyboard could be initiated based on the accomplishment of a condition under the control of the keyboard. For example, the keyboard could be provided with a key dedicated to execute the keyboard-reducing function, such as *Goktekin*'s **camera mode key 8**, illustrated below (left), or *Koch*'s **keyboard split key 5012**, illustrated below (right). *Goktekin*, ¶¶[0046]-[0047] ("camera mode key 8"); *Koch*, ¶¶[0232]-[0233]. Alternatively, a user could perform a gesture on the keyboard, such as *Koch*'s **gestures 5010-A** and **5010-B**, to reduce the keyboard's size. *Koch*, ¶[0233].



Goktekin, Fig. 1a (annotated)



Koch, Fig. 5A (annotated)

68. Thus, in summary, before the '922 patent was filed, the prior art well disclosed the challenges of implementing an effective and efficient mobile electronic device with a touchscreen display. In particular, the art disclosed the challenges of activating and accommodating a second application on a touchscreen display. To that challenge, the art disclosed several solutions, including using a keyboard action (e.g., button press or swipe) to display the second application and a reduced-keyboard interface.

VII. THE '922 PATENT

A. Alleged Invention of the '922 Patent

69. The '922 patent relates to “data input systems and particularly systems and methods for entering letters, words, other symbols and/or other information.”

Ex. 1001, 1:5-7. In part, the '922 patent's disclosure focuses on an on-screen

keyboard for a mobile electronic device. The '922 patent explains that “[o]ne problem of mobile device(s) is text entry, which is problematic due to their small size.” Ex. 1001, 1:15-17. As the '922 patent further explains:

With the emergence of devices having touch screens, on[-]screen full (e.g.[,] QWERTY) keyboard systems are used on most devices. Due to the size of mobile devices, and the number of keys of a full keyboard, such keys are reduced in size[,], rendering the keyboard cumbersome and the data entry slow. The screen of a device is intended to display the output. Having a full keyboard with many keys on the screen covers a significant portion of the screen, hindering the use of many current applications and limiting creation of many other applications.

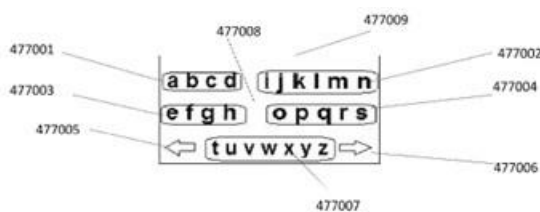
Ex. 1001, 1:29-39. In part, the '922 patent purports to address such problems.

70. As one solution, the '922 patent proposes “a switching method ... to reduce the size of the/a keypad,” thereby creating space for a “broadly ambiguous zone” to provide alternate text entry capabilities:

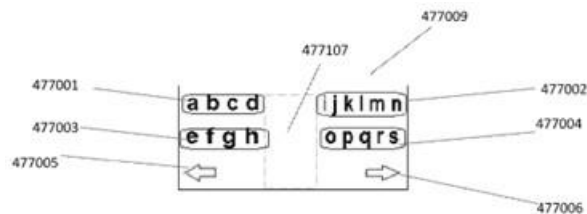
According to one embodiment, the system may have a switching method ... to reduce the size of the/a keypad[,], for example[,], such as the keypad of FIG. 35A. As such, as shown in FIG. 35B, after switching the keypad to such a mode. In this example, the size of the keys 477001 to 477004 are reduced, and the key/zone 477007 is replaced

by the broadly ambiguous zone 477107. Now, interacting anywhere on the zone 477107 is preferably ambiguously related to any of the letters T to Z. [A]ccording to one method, in this example, the number of subzones may be reduced ... to correspond to the main letters/characters, and the secondary characters may be entered as described before or in any other manner known by people skilled in the art.

Ex. 1001, 38:20-32. Figures 35A and 35B, reproduced below, demonstrate the '922 patent's keyboard "switching method."



Ex. 1001, Fig. 35A



Ex. 1001, Fig. 35B

71. As another solution, the '922 patent proposes reducing the size of the keypad to make space for the interface of another executable "object/component ... such as a computer software/application":

According to one embodiment of the invention, the (e.g., [] system) resources (e.g., [] input means and/or screen areas of an input interface such as a touchscreen) allocated/assigned to an input method (e.g., [] a native keyboard of an operating system/device) such as an input method of [the] invention may be utilized by and/or made

available to an executable object/component (e.g.,] such as a computer software/application), preferably in addition to the input method (e.g.,] alone), herein referred to as extra input method resource(s). Since the input method of the invention may be reduced in size and/or, for example, made invisible, the screen area(s) usually allocated to a full-sized input method/keyboard (e.g.,] that occupies a predefined area of the screen allocated by a (e.g.,] operating) system/device to an input means such as a keyboard) (e.g.,] considered larger than a [sic] input method with reduced size) and under control of the input method may be made available to another application.

Ex. 1001, 85:11-27 (emphases added). Thus, in this embodiment, space formerly occupied by the keyboard is made available for an application to perform a different function (e.g., different from keyboard text entry). Notably, this embodiment differs from the reduced keyboard of Figure 35B (above), which creates space (“broadly ambiguous zone 477107”) to provide *alternate keyboard text-entry functionality* (“interacting anywhere on the zone 477107 is preferably ambiguously related to any of the letters T to Z”). Ex. 1001, 38:20-32.

72. The '922 patent's figures do not illustrate a second application occupying space formerly occupied by a keyboard; however, the '922 patent suggests exemplary-use cases and alleged advantages of such a feature:

[T]he extra input method resources such as a screen area may contain a chat application, such as, for example[,] Skype, [an] image editing method/application of the invention (described herein), [a] video chat application, while a regular application area (e.g., all related operating system and device resource[,] e.g., such as a touchscreen device/resource) of an operating system may be occupied by other application(s), such as, for example[,] WhatsApp. According to the current embodiment, an input method such as the input method of the invention may (e.g., simultaneously) interact with applications in the extra input method resource or in the regular application area of an operating system.

Several advantages of such principles relating to current embodiment follow, as an example: (1) the user can chat on an instant messaging application(s) with other users, for example, on WhatsApp, Skype, Facebook, and at the same time the user can[,] for example, send pictures, edit pictures (e.g., using the image editing method/application of the invention) from the application(s) operating in the extra input method resources (e.g., under control of the input method). Optionally, the user may share pictures with other users through any application(s). For example, an [sic] picture edited as such may be share[d] through a chat application such as WhatsApp preferably operating in the regular

application area of an operating system[;] (2) a user can chat with a first group of users by using an instant message application as described, and in the extra input method resource area[,] a user may video chat with a second group of users.

Ex. 1001, 85:27-55.

73. The claims of the '922 patent recite additional features, including the use of a “search application activated by interacting with a button of [a] keyboard assigned to activating said search application.” Ex. 1001, 123:21-24 (claim 8).

While the '922 patent does not explain the use of such a button, it describes a “search application” generally in terms of functionalities that a “search application/function” may provide, such as conducting a search based on (1) “text with many different characteristics ... and/or in/on different context,” (2) “an image (e.g.,[,] used as a background image to the [search] keyword),” and (3) information derived from images (e.g., “information such as a document (e.g.,[,] picture that includes a color text with words displayed in different directions ...)).

Ex. 1001, 103:24-52.

B. Prosecution History

74. I have reviewed the prosecution history of the application that led to the '922 patent, U.S. Patent Application No. 15/412,026 (“the '026 application”).

Ex. 1004. Below, I summarize certain events in the prosecution history of the '026 application.

75. When it was first filed, the '026 application included the following “claim 1”:

1. A system for using multiple applications on a touch screen of a device, comprising:

an electronic device having a touchscreen;

a keyboard for entering text in a first application running on said touchscreen wherein a first zone of said touchscreen is assigned to said first application and a second zone of said touchscreen is assigned to said keyboard; and

wherein based on accomplishment of a condition the system displays an interface of a second application on at least a portion of said second zone.

Ex. 1004, 864 (application claims filed 1/22/2017).

76. The patent examiner rejected claim 1 as anticipated by the prior art.

Ex. 1004, 622 (7/31/2019 Office Action, p. 7).

77. In response, the applicant amended claim 1 to require, among other things, (a) an “on-screen” keyboard, (b) the second application interface is displayed “based on accomplishment of a condition under the control of said keyboard,” and (c) the first and second application interfaces are “simultaneously displayed on said touchscreen.” Ex. 1004, 579 (12/2/2019 Amendment, p. 1) (underlining represents language added via amendment).

78. The applicant then conducted an interview with the patent examiner, after which claim 1 was further amended to require (d) the condition under the

control of said keyboard “activates [the] second application,” (e) both the “second application and a reduced interface corresponding to said keyboard” are displayed on the zone formerly occupied by the full-sized keyboard, and (f) the reduced interface is simultaneously displayed with both first and second application interfaces. Ex. 1004, 551 (3/16/2020 Examiner’s Amendment, p. 4) (underlining represents language added by amendment). Based on those amendments, the claims were allowed. Ex. 1004, 547.

C. Priority Date for the ’922 Patent Claims

79. As part of my analysis, I have been asked to consider whether the subject matter claimed in the ’922 patent is disclosed in U.S. Provisional Application No. 61/765,751 (“the ’751 application,” Ex. 1006), the earliest alleged priority application for the ’922 patent, which was filed on February 17, 2013. It is my opinion that the claimed subject matter is not disclosed in the ’751 application, for the reasons stated below.

80. Independent claims 1 and 12 recite combinations including each of the following three limitations:

- (1) “based on accomplishment of a condition under the control of [a] keyboard”;
- (2) “activat[ing] a second application and display[ing] an interface of the second application and a reduced interface

corresponding to said keyboard on at least a portion of [the] second zone” assigned to the keyboard; and

(3) wherein the interfaces of the first and second applications and the reduced interface corresponding to the keyboard *all* “are simultaneously displayed.”

Ex. 1001, Claims 1, 12. Each of dependent claims 2-11 and 13-21 incorporates these three limitations by reference; therefore, the limitations are required by every claim of the '922 patent. Of particular note, dependent claims 8-9 and 15-17 further require that the “second application” be a “search application.” Ex. 1001, Claims 8-9, 15-17. This means that, for claims 8-9 and 15-17, the accomplishment of a condition under the control of a keyboard must cause a *search application* interface to be displayed on the “second zone.”

81. The '922 patent describes reducing a keyboard interface specifically to make space to display a second application, as claimed.¹⁰ Ex. 1001, 85:11-67.

¹⁰ I note this fact only to provide context for my analysis of the '751 application's disclosure, and not to suggest in any way that the '922 patent *itself* provides adequate written description of the claims. I offer no opinion as to whether the '922 patent's claims are adequately supported by the '922 patent's written description.

82. I have considered the '751 application and determined that it does not describe (a) the combination of claim elements above or (b) the written description from the '922 patent identified above. In my opinion, the most pertinent disclosure from the '751 application appears to be its disclosure that “at least one of some of the keys of the keypad may represent an option/action to access/execute another application”:

According to one embodiment of the invention, during the entry of text, at least one of some of the keys of the keypad may represent an option/action to access/execute another application such as, for example, a search or a social networking application. As an example, providing a predefined interaction such as a long gliding action provided on/from a key may switch an operating system to a predefined application represented by said key. As an example, during the entry of text (e.g., using the system) in a first application, a portion of the information content (e.g., text) may be selected. As an example, one of the keys of the keypad may represent the “Google search” application. By providing a predefined interaction with said key, the operating system may focus/activate the Google Search application and use/for use of the selected portion of said information content (e.g., text), for example, as a keyword of a search field. A searching action may be provided automatically. The user may

switch back to the previous application by providing an Undo function of (for example) the device, or[,] for example[,] of the second application, or[,] for example[,] of the keyboard, etc.

Ex. 1006, 105-06 (Provisional Application, pp. 99-100).

83. It may be argued that the foregoing disclosure from the '751 application describes activating an application (e.g., a search application) “based on the accomplishment of a condition under the control of [a] keyboard.” A POSITA, however, would not consider the disclosure to teach or suggest that accomplishing the condition *also* causes “display[ing] an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of [the] second zone” assigned to the keyboard. Indeed, the '751 application is silent on that point.

84. Further, a POSITA would not consider the '751 application to teach or suggest that the interfaces of the first and second applications and the reduced interface corresponding to the keyboard “are simultaneously displayed.” Quite the opposite, in fact. The '751 application teaches that the second application activated by the keyboard (e.g., “Google search”) actually displaces the first application, because “[t]he user may *switch back* to the previous application by providing an Undo function of (for example) the device, or[,] for example[,] of the second

application, or[,] for example[,] of the keyboard, etc.” Ex. 1006, 106 (Provisional Application, p. 100) (emphasis added). From the fact that a user must “switch back” to the previous application, a POSITA would understand the ’751 application to disclose that the first and second applications are alternately—and *not simultaneously*—displayed. Thus, the combination of features later claimed in the ’922 patent does not appear anywhere in the ’751 application.

85. Because the ’751 application does not disclose the subject matter claimed in the ’922 patent, it is my understanding that the ’922 patent claims are not entitled to priority as of the February 17, 2013, date on which the ’751 application was filed. I have also considered whether any provisional application filed up to **December 24, 2013** (namely, Exhibits 1007-1053), discloses the combination of features claimed in the ’922 patent and listed above in paragraph 83. None of the applications appearing at Exhibits 1007-1052 recites the combination of claimed features. At most, the latest of the applications (Provisional Application No. 61/920,572, Ex. 1053), filed December 24, 2013, includes the disclosure that later appears in the ’922 patent regarding reducing the size of the keypad to make space for the interface of another application. *Compare* Ex. 1053 at 21-22 (application pages 10-11) (describing that “screen area(s) usually allocated to a full-sized input method/keyboard ... may be made available to another application”) *with* Ex. 1001, 85:19-27 (same). Exhibit 1053 does not

combine that feature with the other features recited in the '922 patent's independent claims (e.g., "based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone") or the dependent claims requiring a "search application" to be displayed on the "second zone" (claims 8-9, 15-17). I have nonetheless been instructed to assume that the earliest potential priority date for the '922 patent is December 24, 2013, i.e., the filing date of Provisional Application No. 61/920,572. I offer no opinion, however, as to whether that provisional application provides written description to support the '922 patent's claims.

86. I have been advised that the *Goktekin* reference, which I analyze herein in Grounds 1-4, qualifies as prior art to the claims of the '922 patent as long as at least one claim of the '922 patent is entitled to a priority date no earlier than March 16, 2013.

87. I have also been advised that the *Koch* reference, which I analyze herein in Grounds 5-7, would qualify as prior art to the claims of the '922 patent *even if* the '922 patent were entitled to priority to February 17, 2013 (when the '751 application was filed). I understand that the other references that I analyze in Grounds 5-7—namely, *Sirpal* and *Matthews*—all qualify as prior art even

assuming a February 17, 2013, priority date. There is no material difference in the level of skill of a POSITA as of February 17, 2013, and as of December 24, 2013, that would affect my analysis. Therefore, my analysis and opinions as to Grounds 5-7 would not change even under a priority date of February 17, 2013.

D. Claim Construction

88. I have been instructed that the “intrinsic record” includes the ’922 patent itself, including the claims, description, and figures (Ex. 1001), and the ’922 patent’s prosecution history—i.e., the record of proceedings at the U.S. Patent and Trademark Office (“Patent Office”) concerning the patent (Ex. 1004). I understand that, like the claims and written description, the prosecution history provides evidence to a person of ordinary skill in the art of how the inventor intended his patent to be understood, and how the Patent Office understood the patent. I understand that the inventor is permitted to apply a special definition to the terms or to limit the scope of claim terms in his patent claims, which may differ from the term’s plain and ordinary meaning. That special definition or limitation on scope may be provided in the patent’s written description, the patent’s prosecution history, or both.

89. I understand that claim interpretation may also be informed by “extrinsic evidence” (that is, evidence outside of the patent record itself). I have been informed that extrinsic evidence may include dictionaries, technical treatises,

and other materials evidencing the meaning of a claim term and the understanding held by a POSITA in the relevant time period.

90. I have been asked for purposes of this declaration to apply the plain and ordinary meaning of the claim terms as they would have been understood by a POSITA at the earliest claimed priority date of the '922 patent.

91. I understand that no claim term's construction is in dispute at this time. Based on my review of these materials and my personal knowledge and experience, I have considered each term of the '922 patent as it would have been understood by a POSITA at the earliest alleged priority date of February 17, 2013. I have also considered the meaning of each term of the '922 patent as of the earliest arguable priority date of December 24, 2013. For purposes of my analysis here, there is no material difference in how a POSITA would have understood the '922 patent claim terms on that later date.

VIII. LEVEL OF ORDINARY SKILL IN THE ART

92. In rendering the opinions set forth in this declaration, I have been asked to consider the '922 patent's claims and the prior art through the eyes of a person of ordinary skill in the art (which I may also refer to as "one skilled in the art," "skilled artisan," "POSITA," or similar variation). I have considered factors such as the educational level and years of experience of those working in the pertinent art, the types of problems encountered in the art, the teachings of the

prior art, patents and publications of other persons or companies, and the sophistication of the technology.

93. Taking the factors described in the Legal Standards – Level of Ordinary Skill section into consideration, it is my opinion that a POSITA would have had at least a bachelor’s degree in electrical engineering, computer science, or a similar field and two to three years of experience designing graphical user interfaces. Additional relevant work experience can compensate for less education, and vice versa.

IX. THE PRIOR ART

94. In forming my opinions, I found the following prior art relevant when considering whether the claims of the ’922 patent would have been obvious to a POSITA.

Ex. 1059	U.S. Patent Application Pub. No. 2013/0234945 (“ <i>Goktekin</i> ”)
Ex. 1060	U.S. Patent Application Pub. No. 2012/0113023 (“ <i>Koch</i> ”)
Ex. 1061	U.S. Patent Application Pub. No. 2012/0110486 to Sirpal et al. (“ <i>Sirpal</i> ”), which further incorporates U.S. Provisional Patent Application No. 61/389,000 to Sirpal et al. (Ex. 1067, “ <i>Sirpal-000</i> ”)
Ex. 1062	U.S. Patent No. 8,744,173 to Vincent et al. (“ <i>Vincent</i> ”)
Ex. 1063	U.S. Patent Application Pub. No. 2012/0215533 to Aravamudan et al. (“ <i>Aravamudan</i> ”)
Ex. 1064	U.S. Patent No. 7,340,686 to Matthews et al. (“ <i>Matthews</i> ”)

A. *Goktekin* (U.S. Patent Application Pub. No. 2013/0234945)

95. U.S. Patent Application Publication No. 2013/0234945 (“*Goktekin*”; Ex. 1059), published September 12, 2013, from an application filed March 5, 2013. I have been asked to assume that *Goktekin* is prior art to the ’922 patent, although I understand that assumption is based on the ’922 patent not being entitled to the February 17, 2013, priority date of the ’751 application, as discussed above in Section VII.C.

96. In my opinion, *Goktekin* is analogous art because it is directed to the same field of endeavor as the ’922 patent—input methods and systems for application(s) running on a touchscreen mobile device. For example, *Goktekin* describes its invention as providing “multimodal text input in a mobile device,” including via “a touch screen keyboard as well as in a camera mode.” *Goktekin*, Abstract, ¶[0015]. Likewise, the ’922 patent describes a “data entry system ... adapted to mobile environments.” Ex. 1001, 1:47-48. “Preferably, said keypad is a virtual keypad located on a touch sensitive surface. Optionally, said touch sensitive surface is a touch screen.” Ex. 1001, 2:34-36.

B. *Koch* (U.S. Patent Application Pub. No. 2012/0113023)

97. U.S. Patent Application Publication No. 2012/0113023 (“*Koch*”; Ex. 1060), published May 10, 2012, from an application filed March 30, 2011. I have been asked to assume that *Koch* is prior art to the ’922 patent.

98. In my opinion, *Koch* is analogous art because it is directed to the same field of endeavor as the '922 patent—input methods and systems for application(s) running on a touchscreen mobile device. For example, *Koch* describes “user interfaces (‘UI’) and associated processes that may be implemented on an electronic device with a display and a touch-sensitive surface.” *Koch*, ¶[0229]. Likewise, the '922 patent describes a “data entry system ... adapted to mobile environments.” Ex. 1001, 1:47-48. “Preferably, said keypad is a virtual keypad located on a touch sensitive surface. Optionally, said touch sensitive surface is a touch screen.” Ex. 1001, 2:34-36.

C. *Sirpal* (U.S. Patent Application Pub. No. 2012/0110486)

99. U.S. Patent Application Publication No. 2012/0110486 (“*Sirpal*”; Ex. 1061), published May 3, 2012, from an application filed September 28, 2011. I have been asked to assume that *Sirpal* is prior art to the '922 patent. In my opinion, *Sirpal* is analogous art because it is directed to the same field of endeavor as the '922 patent—input methods and systems for application(s) running on a touchscreen mobile device. For example, *Sirpal* states that “[i]nputs received on the screen displaying the universal clipboard application can cause content to be copied to an application being displayed on the other screen of the multi-screen device.” *Sirpal*, Abstract. *Sirpal* further addresses the need for “careful balancing between the displayed graphics and the area provided for receiving inputs” on a

touchscreen. *Sirpal*, ¶[0003]. Likewise, the '922 patent describes a “data entry system ... adapted to mobile environments” and a keypad that “is a virtual keypad located on a touch sensitive surface ... [, e.g.,] a touch screen.” Ex. 1001, 1:47-48, 2:34-36.

100. *Sirpal* claims priority to Provisional Application No. 61/389,000 (*Sirpal-000*, Ex. 1067). *Sirpal*, Cover (60). *Sirpal* also expressly and unambiguously incorporates the entirety of *Sirpal-000* “for all that [it] teach[es] and for all purposes.”

CROSS REFERENCE TO RELATED
APPLICATION

[0001] The present application claims the benefits of and priority, under 35 U.S.C. §119(e), to U.S. Provisional Application Ser. Nos. 61/389,000, filed Oct. 1, 2010, entitled “DUAL DISPLAY WINDOWING SYSTEM;” 61/389,117, filed Oct. 1, 2010, entitled “MULTI-OPERATING SYSTEM PORTABLE DOCKETING DEVICE;” 61/389,087, filed Oct. 1, 2010, entitled “TABLET COMPUTING USER INTERFACE;” 61/458,150, filed Nov. 17, 2010, entitled “Dual Screen Email Client;” _____, filed Sep. _____, 2011, entitled “MOBILE DEVICE.” Each of the aforementioned documents is incorporated herein by this reference in their entirety for all that they teach and for all purposes.

Sirpal, ¶[0001] (annotated)

101. Although a POSITA would not be expected to have any particular legal expertise, the POSITA would have been generally comfortable with and understand the concept of one document “incorporating by reference” another document. The concept often arises in the context of patents, which a POSITA would have understood how to read, as well as in technical literature, which often

directs the reader to other papers or materials that the reader should consult to gain further understanding of topics discussed. To a POSITA, the incorporation language of *Sirpal* would have clearly communicated that the material of *Sirpal-000* is effectively part of *Sirpal*, just as if it were explicitly contained therein. Moreover, a POSITA would understand *Sirpal*'s incorporation to include the entire disclosure of *Sirpal-000* and all of the concepts contained therein because *Sirpal* plainly states that it incorporates *Sirpal-000* in its "entirety" and "for all that [it] teach[es] and for all purposes." *Sirpal*, ¶[0001].

102. Furthermore, a POSITA would have understood from *Sirpal*'s incorporation paragraph exactly how to find the incorporated disclosure of *Sirpal-000*, namely, by accessing U.S. Provisional Application Ser. No. "61/389,000, filed Oct. 1, 2010, entitled 'DUAL DISPLAY WINDOWING SYSTEM,'" as expressly stated by *Sirpal*. *Sirpal*, ¶[0001]. I understand that while U.S. provisional patent applications are not "published," the Patent Office makes such applications publicly available when (as with *Sirpal-000*) they are relied upon and incorporated into another published patent application. Thus, a POSITA considering *Sirpal* also would have considered the materials it incorporates, specifically *Sirpal-000*.

D. Vincent (U.S. Patent No. 8,744,173)

103. U.S. Patent No. 8,744,173 (“*Vincent*”; Ex. 1062), issued June 3, 2014, from an application filed September 15, 2012. I have been asked to assume that *Vincent* is prior art to the ’922 patent.

104. In my opinion, *Vincent* is analogous art because it is directed to the same field of endeavor as the ’922 patent—input methods and systems for application(s) running on a touchscreen mobile device. For example, *Vincent* states that its “method includes receiving an input of one or more image search terms identifying keywords from the received one or more image search terms,” and its system “can be embedded in another device, e.g., a mobile telephone.” *Vincent*, 2:30-37, 15:16-19. Likewise, the ’922 patent describes a “data entry system ... adapted to mobile environments.” Ex. 1001, 1:47-48. “Preferably, said keypad is a virtual keypad located on a touch sensitive surface. Optionally, said touch sensitive surface is a touch screen.” Ex. 1001, 2:34-36.

E. Aravamudan (U.S. Patent Application Pub. No. 2012/0215533)

105. U.S. Patent Application Publication No. 2012/0215533 (“*Aravamudan*”; Ex. 1063), published August 23, 2012, from an application filed January 25, 2012. I have been asked to assume that *Aravamudan* is prior art to the ’922 patent.

106. In my opinion, *Aravamudan* is analogous art because it is directed to the same field of endeavor as the '922 patent—input methods and systems for application(s) running on a touchscreen mobile device. For example, in *Aravamudan*, “[e]mbodiments of the invention general[ly] relate to correcting errors present in user input to user interface systems.” *Aravamudan*, ¶[0030]. *Aravamudan*’s techniques and systems “may be implemented as a computer program product for use with a computer system or computerized electronic device (e.g., Smartphone, PDA, tablet computing device, etc.,” which are devices that were known at the time to include a touchscreen interface. *Aravamudan*, ¶[0059]. And *Aravamudan* explains that its device offers an improvement for a prior-art device that is clearly illustrated (in Figure 4, element 409) as having a touchscreen keyboard interface. *Aravamudan*, ¶¶[0056]-[0057]. Likewise, the '922 patent describes a “data entry system ... adapted to mobile environments.” Ex. 1001, 1:47-48. “Preferably, said keypad is a virtual keypad located on a touch sensitive surface. Optionally, said touch sensitive surface is a touch screen.” Ex. 1001, 2:34-36.

F. *Matthews* (U.S. Patent No. 7,340,686)

107. U.S. Patent No. 7,340,686 (“*Matthews*”; Ex. 1064), issued March 4, 2008, from an application filed March 22, 2005. I have been asked to assume that *Matthews* is prior art to the '922 patent.

108. In my opinion, *Matthews* is analogous art because it is reasonably pertinent to the particular problem with which the inventor of the '922 patent was involved. Although the specification of the '922 patent is very long and wide-ranging, one particular problem (indeed, the main problem) it addresses is to improve the speed and efficiency of interfaces for computer search functionalities. See Ex. 1001, 103:24-34 (“[e]ntering text with many different characteristics ... used in ... a search application/function ... for faster and more accurate/relevant search results”), 104:20-28 (“search box ... may be provided by the searching system/application/engine”). *Matthews* is reasonably pertinent to that same problem, as it describes using the button of a keyboard to activate a “search box,” thus allowing a “user [to] immediately start typing text for which he or she would like to search.” *Matthews*, 19:31-39.

X. GROUNDS OF UNPATENTABILITY IN MY OPINION

109. Based on my review of the materials set forth above, including my application of the knowledge of a POSITA, it is my opinion that claims 1-21 of the '922 patent would have been anticipated and/or obvious to one of ordinary skill in the art.

110. In particular, it is my opinion that claims 1-21 of the '922 patent would have been anticipated and/or obvious to a POSITA based on the reference(s) shown below:

Ground	Claims	Basis	Prior Art
1	1-5, 7, 10-14, 18-21	Anticipation and/or Obviousness	<i>Goktekin</i>
2	2, 6, 20	Obviousness	<i>Goktekin</i> in view of <i>Sirpal</i>
3	8, 15	Obviousness	<i>Goktekin</i> in view of <i>Vincent</i>
4	9, 16, 17	Obviousness	<i>Goktekin</i> in view of <i>Vincent</i> and <i>Aravamudan</i>
5	1-5, 7, 10-14, 18-21	Anticipation and/or Obviousness	<i>Koch</i>
6	6	Obviousness	<i>Koch</i> in view of <i>Sirpal</i>
7	8, 9, 15-17	Obviousness	<i>Koch</i> in view of <i>Matthews</i>

XI. THE CHALLENGED CLAIMS ARE UNPATENTABLE OVER THE PRIOR ART

111. In my opinion, claims 1-21 would have been anticipated and/or obvious to one skilled in the art at the earliest priority date of the '922 patent.

A. Ground 1: *Goktekin* Anticipates and/or Renders Obvious Claims 1-5, 7, 10-14, and 18-21

112. In my opinion, *Goktekin* anticipates or at least renders obvious claims 1-5, 7, 10-14, and 18-21.

1. Independent Claim 1

a. [1pre] A system for using multiple applications on a screen of a device, comprising:

113. To the extent the preamble is limiting, *Goktekin* discloses a system for using multiple applications on a screen of a device.

114. For example, in its Abstract, *Goktekin* discloses a system in which “[t]ext may be input via keyboard or camera mode.” *Goktekin*, Abstract. As I explain below in [1d], *Goktekin*’s “camera mode” is an “application.” And the camera mode outputs “recognized character text as the input text to [another] application.” *Goktekin*, Abstract. Further, both applications are on a screen of a device, as discussed in [1e].

b. [1a] an electronic device having a touchscreen;

115. *Goktekin* discloses an electronic device having a touchscreen.

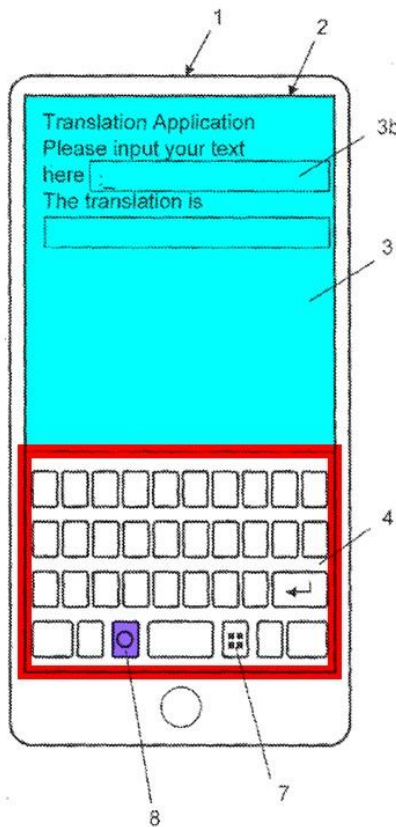
116. For example, *Goktekin* discloses a “mobile device 1 with the display 2 being [a] touch screen.” *Goktekin*, ¶[0046]. A POSITA would plainly recognize the mobile device to be an “electronic” device, even though *Goktekin* does not use that particular adjective. This is because its method is implemented “in a multimodal text input program module, ... with the same interface to an application as an original keyboard module and under a respective operating system of the mobile device 1.” *Goktekin*, ¶[0032] (emphases added). A device can only run computer

program modules on an operating system, as *Goktekin* discloses, if it is an electronic device. And *Goktekin* describes the kinds of “application[s]” that can run on the device in terms of electronic device applications: “a translation application, a search application such as google search or the like searching for a keyword in the internet, a phone application requesting for a phone number or a name or for any other application requesting text input.” *Goktekin*, ¶[0034]. Thus, *Goktekin*’s device is inherently electronic.

c. [1b] an on-screen keyboard for entering text in a first application running within said device

117. *Goktekin* discloses an on-screen keyboard for entering text in a first application running within said device.

118. For example, as illustrated below in Figure 1a, *Goktekin* discloses “multimodal text input on a mobile device either via a **keyboard** or in a camera based mode,” such that “input text [from the keyboard] or the [camera] recognized text, respectively, is output as the input text to an **application** receiving the input text.” *Goktekin*, ¶[0002].



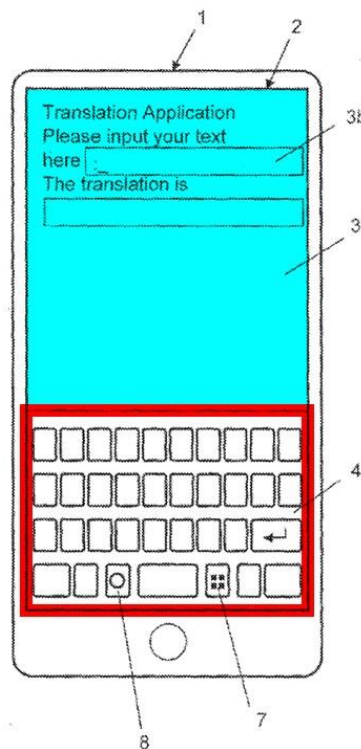
Goktekin, Fig. 1a (annotated)

119. *Goktekin*'s keyboard is "a touch screen keyboard," meaning that it is an "on-screen keyboard" as claimed. *Goktekin*, ¶[0039].

- d. [1c] wherein a first zone of said touchscreen is assigned to an interface of said first application and a second zone of said touchscreen is assigned to said keyboard; and

120. *Goktekin* discloses that a first zone of said touchscreen is assigned to an interface of said first application and a second zone of said touchscreen is assigned to said keyboard.

121. For example, as illustrated below, *Goktekin*'s **first application interface** appears on an upper portion of the touchscreen, while its **keyboard** appears on a lower portion. A POSITA would understand the location of the first application interface to be a “first zone” and the location of the keyboard to be a “second zone,” as claimed, at least because each interface appears in different areas on the touchscreen.



Goktekin, Fig. 1a (annotated)

122. A POSITA further would understand that each graphical object appearing on *Goktekin*'s screen (e.g., the application interface and keyboard) is “assigned” by the system to its physical location or “zone.” This is because an

electronic computer device with a screen necessarily includes computer code that prescribes where on the screen any given element (such as an application GUI or keyboard GUI) is to appear. Quite simply, that is how the device knows where each element is to be displayed. Moreover, without code assigning each graphical object to a location (or “zone”), a touchscreen device such as *Goktekin*’s would be unable to correlate to *which* object(s) or interface(s) (if any) a user’s touch interaction on the touchscreen should apply, and the device would be non-functional. In the absence of such a zone assignment, for example, typing on the keyboard would not work because the device would not know which key corresponds to a touch interaction on a given portion of the screen.

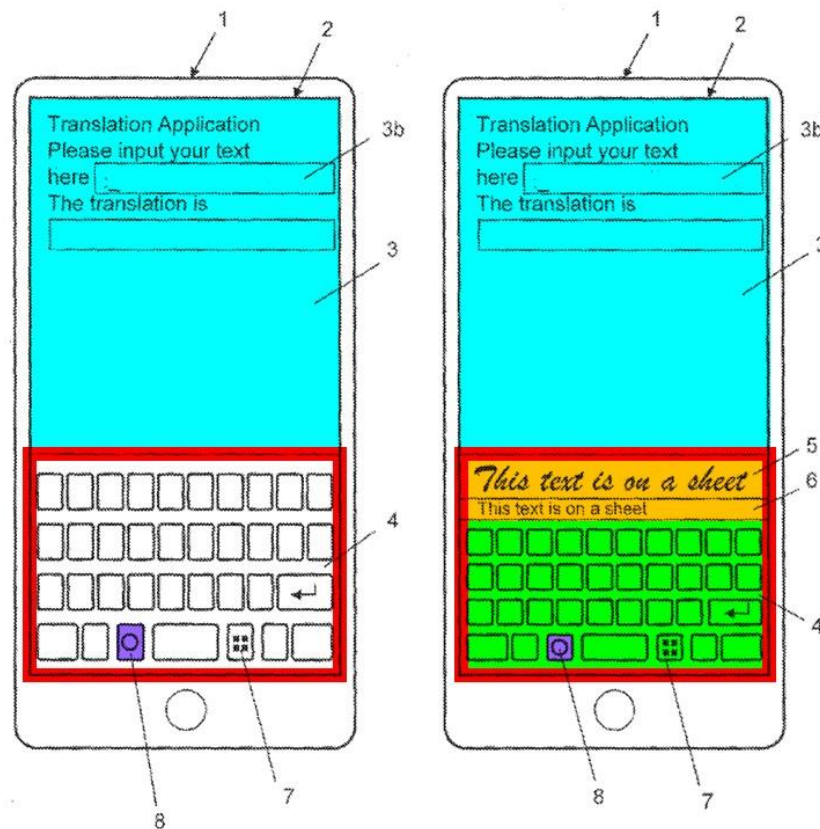
123. Thus, it is my opinion that a POSITA would understand the first and second zones to be inherently “assigned” to *Goktekin*’s first application interface and keyboard, respectively.

- e. **[1d] wherein based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone, and**

124. *Goktekin* discloses or at least renders obvious that, based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application

and a reduced interface corresponding to said keyboard on at least a portion of said second zone.

125. For example, *Goktekin* discloses “press[ing] a **camera mode key 8** to switch over to the camera mode,” as illustrated below in the transition from Figure 1a (no camera mode) to Figure 1b (camera mode). *Goktekin*, ¶¶[0046]-[0047]. This means that the **camera mode application** is activated “based on accomplishment of a condition under the control of said keyboard”—and more specifically based on accomplishment of a button press on the keyboard. *Goktekin* “activates” the camera mode application by making it an “active application,” e.g., such that it can receive input, capture images, and recognize text. As illustrated below in Figure 1b, pressing the camera mode button has made the camera mode application an “active application” because it is visible and can be interacted with, for example, (a) by directly “touching or pressing, respectively, on the word on the touch screen” or (b) through the keyboard via a “keypress on the camera key or a keypress ... on the RETURN key or the like” to cause text from the camera text input application to be output to the **first application**. *Goktekin*, ¶¶[0049],[0050].



Goktekin, Figs. 1a-1b (annotated)

126. *Goktekin*'s **camera mode application interface (5, 6)** is an interface for a second application. Specifically, the **interface (5,6)** is used as an interface to perform several application actions separate from the actions of the keyboard, including: to "display[] a part of the respective image [captured by the device's camera] in the second field 5" and to display "recognized text in the third field 6" based on the results of the second application's optical character recognition (OCR) analysis. *Goktekin*, ¶[0048]. As an additional action, "[i]f the recognized and displayed text is correct and desired[,] the user selects the recognized text as

input text, whereupon the selected text is output to the application preferably in the same way as the text would have been input via the keyboard.” *Goktekin*, ¶[0048]. Thus, *Goktekin*’s camera mode is a computer program¹¹ that assists in the performance of a text-entry task and *Goktekin*’s camera mode is a “second application.” Additionally, I note that *Goktekin*’s camera mode may be separate from the keyboard application, i.e., “a separate camera text input module, wherein the camera text input module is like a complement or supplement to the original keyboard module.” *Goktekin*, ¶[0033].

127. Pressing *Goktekin*’s **camera mode key** “displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone.” As illustrated below, “[i]n the camera mode [FIG. 1b,] the **first field 4 for the keyboard** is preferably smaller compared to a size in the **keyboard mode of FIG. 1a**, such that the difference between the size of the first field 4 in the keyboard mode and the smaller size in the camera mode is used for displaying the **second field 5 wherein a part of the captured written**

¹¹ *Goktekin* is a computer with a processor to run such programs. See, e.g., *Goktekin*, claim 27 (reciting a “mobile device comprising: ... processor being configured to receive text input via ... the camera mode”).

text is displayed and for displaying the third field 5¹² wherein the recognized text is displayed.” *Goktekin*, ¶[0047]. Thus, *Goktekin* displays both an interface of a second application and a reduced interface for the keyboard on at least a portion of the “second zone.”

128. Finally, it is my opinion that even if *Goktekin*’s camera text input module were not considered to be an “application,” it would have been obvious to implement it as such. A POSITA implementing any functionality on a mobile electronic device, such as the camera text input mode of *Goktekin*, would have understood to provide the functionality as some form of computer programming code or module, which includes instructions to perform the task(s) called for by the function. Whether such code is implemented as its own “application” or as a component (e.g., service, sub-routine) of the operating system or the operating system’s keyboard was entirely a matter of design choice and, to some extent, a matter of semantics. Either implementation was well within the capabilities of a

¹² Paragraph [0047] of *Goktekin* includes an obvious typographical error, identifying the “third field” with numeral “5,” while the rest of the disclosure refers to “third field 6.” The designation “third field 6” is accurate. *See Goktekin*, ¶[0072] (defining REFERENCE NUMERALS including “6 third field”).

POSITA and would have been reasonably likely to achieve successful, predictable results.

129. Specifically in the case of *Goktekin*'s camera text input mode, a POSITA would have had the choice to implement the mode as an "application" or as a subcomponent or service of the operating system or the operating system's keyboard. At the time, it was conventional to perform camera and OCR tasks, such as performed by *Goktekin*'s camera text input mode, with an "application." For example, the *Vincent* reference (which I discuss further in Section XI.C, below) describes a mobile device provided with text-recognition functionalities similar to those performed by *Goktekin*'s camera text input mode, and specifically discloses that the "character recognition process is performed using an available character recognition application, for example, an optical character recognition ('OCR') application" or, alternatively, "a character recognition application is built specifically to identify text in images." *Vincent*, 11:8-17. Another publication, *Liow* (published in 2005) disclosed a mobile device with scanning capabilities, including character recognition provided via a "character recognition application." *Liow*, ¶¶[0002], [0007]. And as another example, *Koch* (which I discuss further in Section XI.E to XI.G below) discloses that a mobile electronic "device typically supports ... a digital camera application." *Koch*, ¶[0107]. In short, implementing *Goktekin*'s camera mode via an "application" was one of a finite number of

identified, predictable solutions to providing *Goktekin*'s camera text input mode functionalities; therefore, providing the feature would have been at least obvious to a POSITA.

130. In addition, a POSITA would have had ample motivation to implement *Goktekin*'s camera text input mode via an "application" to achieve several known advantages. As *Goktekin* notes, a "standard mobile device offers already [an] integrated camera module." *Goktekin*, ¶[0004]. And as noted above in paragraph 129, it was well known to provide camera functionality (and OCR functionality) via an application. Thus, a consumer is likely to be familiar with how a mobile device's camera application operates and to have preexisting expectations about that operation. Using and/or modifying the preexisting camera application would more likely meet those expectations than would generating a new (unfamiliar) camera subcomponent or service within the operating system or keyboard. More significantly, implementing *Goktekin*'s camera mode via an application would achieve efficiencies with respect to system and coding resources. Because *Goktekin*'s camera text input module calls upon camera and OCR functionalities, a POSITA would recognize that he or she could most efficiently utilize system and coding resources by exploiting existing camera and/or OCR applications, rather than by coding camera and/or OCR subcomponents or services within the *operating system* or *keyboard program*.

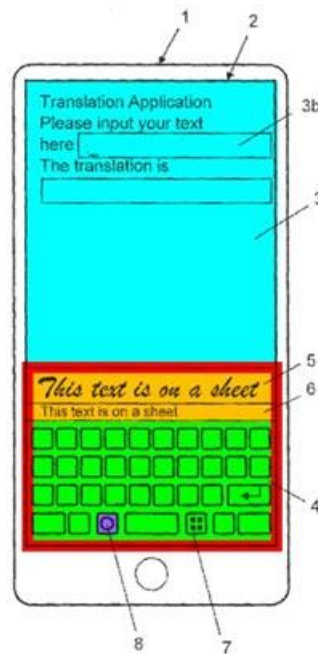
Coding camera/OCR features as subcomponents/services would (a) require significantly more effort and specialized knowledge (such as knowledge of camera firmware, OCR algorithms, etc.) than simply utilizing existing camera/OCR applications and (b) create the potential for bloat in the operating system or keyboard programming by adding resources that may not necessarily be needed by other aspects of the mobile device. Finally, because camera and OCR applications were so well known (and at least in the case of camera applications, “standard” (*Goktekin*, ¶[0004])), a POSITA would have had a reasonable expectation of success when implementing *Goktekin*’s camera text input mode via an application. For all these reasons, the feature would have been obvious, in my opinion.

- f. **[1e] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.**

131. *Goktekin* discloses that said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.

132. For example, as I discuss above in [1d] and as illustrated below, “said **interface of said first application**, said **interface of said second application**, and the **reduced interface corresponding to said keyboard** are simultaneously displayed on said touchscreen,” as required by the claim. Indeed, *Goktekin* touts its

system as beneficial specifically because all three objects may be displayed simultaneously “without overlapping the [first] application more than originally planned by a usage of the original keyboard module.” *Goktekin*, ¶[0047].



Goktekin, Fig. 1b (annotated)

133. For the reasons above, *Goktekin* discloses every limitation of independent claim 1 (or at least renders obvious [1d]) and anticipates, or at least renders obvious, the claim.

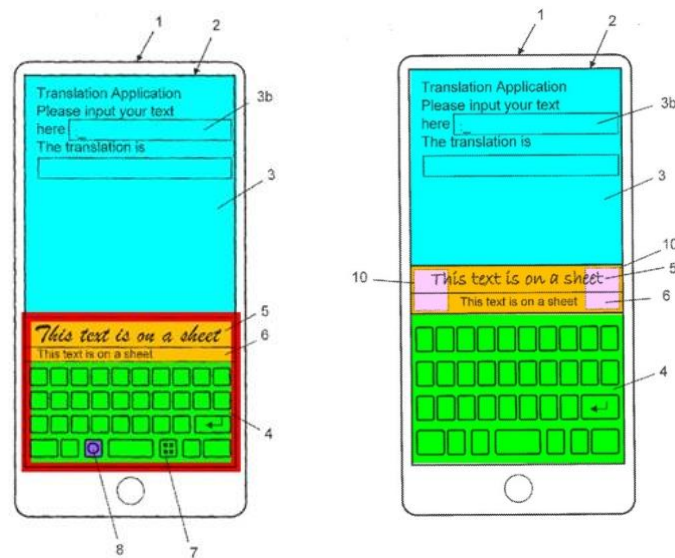
2. Claim 2. The system of claim 1, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

134. *Goktekin* discloses or renders obvious the system of claim 1 as discussed above. *Goktekin* further discloses that, upon interacting with the

interface of any of said applications, the focus of the system is given to the interacted application.

135. Preliminarily, I note that the '922 patent's specification describes assigning the "focus of the input method." Ex. 1001, 85:56-65. Claim 2, in contrast, more broadly refers to the "focus of the system." In view of the '922 patent's word choice, a POSITA would understand claim 2 not to be limited to assigning the focus of the "input method" or the keyboard, but also to assigning the focus of other aspects of the system. (Indeed, I understand that Keyless has broadly interpreted "focus of the system" in litigation. See Ex. 1070.) Notably, *Goktekin* discloses that *both* the focus of the input method (e.g., keyboard) and the focus of the system (generally) are assigned to an application upon an interaction.

136. For example, *Goktekin* discloses that the **interface of the first application** comprises a text input field 3b, and a user may "activate[]" the "text input field 3b" within the application so text may be entered into the input field via the system's text-input methods (i.e., the keyboard or camera input method). *Goktekin*, ¶[0046], Fig. 1b (below-left). In this way, interacting with the interface of the first application causes the focus of the system (namely, the system's text-input methods) to be given to the first application, just as the '922 patent describes. Ex. 1001, 85:56-65.



Goktekin, Figs. 1b, 4 (annotated)

137. Additionally, a POSITA would understand that when a graphical user interface (GUI) of an application is displayed on a touchscreen, interacting with the GUI typically causes the focus of the system (specifically the touch-interface component of the system) to be given to the interacted application. Thus, in *Goktekin*, a user would interact with the interface—for example, by touching—to activate the text input field 3b. Such an interaction would cause the focus of *Goktekin*'s touchscreen input system to be on the interacted application (e.g., because touchscreen technology is designed specifically to translate touch inputs into actions taken on or by the touched application).

138. *Goktekin* also discloses interactions with the **interface of the second application** that cause the focus of the system to be given to the second

application. Specifically, in *Goktekin*, a user interacts with the interface of the second application—e.g., “by touching or pressing ... on the word on the touch screen,” by “select[ing] whatever fits best as the input text,” or by “[a] keypress on one of the hidden **touch keys 10** within the preferred embodiment of FIG. 4 [illustrated above-right]”—to enter text recognized by OCR. *Goktekin*, ¶¶[0050], [0055], [0063]. In each instance, the focus of the system’s touchscreen interface is given to the camera text input application (second application) to determine whether a recognized word should be transmitted by the camera text input application to the first application. *Goktekin*, ¶[0048].

139. Thus, *Goktekin* discloses that, (a) upon interacting with the interface of the “first” application, the focus of the system is given to the first application; and (b) upon interacting with the interface of the “second” (camera mode) application, the focus of the system is given to the second application. Accordingly, the claim limitation is disclosed.

140. Thus, *Goktekin* discloses every limitation of claim 2 and anticipates, or at least renders obvious, the claim.

3. Claim 3. The system of claim 1, wherein said keyboard is used with both of said applications.

141. *Goktekin* discloses or renders obvious the system of claim 1 as discussed above. *Goktekin* further discloses that said keyboard is used with both of said applications.

142. For example, as to the first application, *Goktekin* discloses that “text can be input ... via the keyboard ... and the input text will be sent to the [first] application.” *Goktekin*, ¶[0033].

143. As to the second application (camera mode application), the keyboard is used with the application in multiple ways. First, the user “may press a camera mode key 8 [on the keyboard] to switch over to camera mode.” *Goktekin*, ¶[0046]. Second, selection of text recognized by the camera text input application “can be made preferably by a second keypress on the camera key or a keypress ... on the RETURN key or the like.” *Goktekin*, ¶[0049]. In each case, input entered through the keyboard is sent to (and thus “used with”) the camera text input application.

144. Thus, *Goktekin* discloses every limitation of claim 3 and anticipates, or at least renders obvious, the claim.

- 4. Claim 4. The system of claim 1, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.**

145. *Goktekin* discloses or renders obvious the system of claim 1 as discussed above. *Goktekin* further discloses that an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.

146. For example, *Goktekin* discloses that text from the camera mode application (second application) is shared with the first application:

If the recognized and displayed text [in the second application] is correct and desired[,] the user selects the recognized text as input text, whereupon the selected text is output to the [first] application preferably in the same way as the text would have been input via the keyboard.

Goktekin, ¶[0048]. Further, *Goktekin*'s Figure 1b illustrates both applications displayed simultaneously (as I further discussed above in [1e]). From that illustration and the description in ¶[0048], a POSITA sees that both applications are displayed during the text selection/output step so the user can see what information is being shared from the camera text input application and where the shared information is to be sent. Thus, information (recognized text) received from

the second application (camera text input application) is shared with the first application as input text at the same time both applications are simultaneously displayed.

147. Thus, *Goktekin* discloses every limitation of claim 4 and anticipates, or at least renders obvious, the claim.

5. Claim 5. The system of claim 4, wherein said information includes at least one of, a text, an image, a video, a webpage and a URL.

148. *Goktekin* discloses or renders obvious the system of claim 4 as discussed above. *Goktekin* further discloses that said information includes at least one of a text, an image, a video, a webpage, and a URL.

149. For example, as I discuss in connection with claim 4 above, “said information” shared from the second application to the first application is “a text.” Specifically, the camera shares OCR text information with the first application. *Goktekin*, ¶[0048].

150. Thus, *Goktekin* discloses every limitation of claim 5 and anticipates, or at least renders obvious, the claim.

6. Claim 7. The system of claim 1, wherein at least one of the applications is a messaging application.

151. *Goktekin* discloses or renders obvious the system of claim 1 as discussed above. *Goktekin* further discloses that at least one of the applications is a messaging application.

152. For example, *Goktekin* discloses that a mobile device can include SMS functionalities. *Goktekin*, ¶[0003]. The term SMS stands for “Short Message Service,” and is colloquially referred to as text messaging. Thus, an application for SMS—as provided by *Goktekin*—is, by definition, a “messaging application.” Further, *Goktekin* teaches that its system may be used with “any ... application requesting text input,” a broad disclosure that encompasses text messaging applications. *Goktekin*, ¶[0034]. Accordingly, a POSITA would understand that *Goktekin*’s system may be used with a messaging application as “at least one of the applications.”

153. Thus, *Goktekin* discloses every limitation of claim 7 and anticipates, or at least renders obvious, the claim.

7. Claim 10. The system of claim 1, wherein at least one of the applications is used for sharing at least one of text, pictures, or videos.

154. *Goktekin* discloses or renders obvious the system of claim 1 as discussed above. *Goktekin* further discloses that at least one of the applications is used for sharing at least one of text, pictures, or videos.

155. For example, as I discuss above for claims 4 and 5, the second application (camera text input application) is used for sharing text with the first application. In addition, as I discuss above for claim 7, *Goktekin* discloses that its (first) application may be a messaging application, which also is “used for sharing ... text.” For each of these several reasons, *Goktekin* discloses the additional limitations of claim 10.

156. Thus, *Goktekin* discloses every limitation of claim 10 and anticipates, or at least renders obvious, the claim.

8. Claim 11. The system of claim 1, wherein said device is a mobile phone.

157. *Goktekin* discloses or renders obvious the system of claim 1 as discussed above. *Goktekin* further discloses that said device is a mobile phone.

158. For example, *Goktekin* discloses that its “[m]ethods and modules [are] for a multimodal text input in a mobile device.” *Goktekin*, Abstract. *Goktekin* also discloses that its system is designed to “replace the standard keyboard module on

the standard mobile devices, such as[,] for instance[,] on mobile phones, smart phones[,] or the like.” *Goktekin*, ¶¶[0011], [0032] (“module can replace the original keyboard module on the mobile device 1, advantageously offering all applications multimodal text input features as described”).

159. Thus, *Goktekin* discloses every limitation of claim 11 and anticipates, or at least renders obvious, the claim.

9. Independent Claim 12

a. [12pre] A method comprising:

160. To the extent the preamble is limiting, *Goktekin* discloses a method.

161. For example, *Goktekin* discloses “[m]ethods and modules for a multimodal text input in a mobile device.” *Goktekin*, Abstract.

b. [12a] assigning a first zone of a touch screen to an interface of a first application;

162. *Goktekin* discloses assigning a first zone of a touchscreen to an interface of a first application.

163. For example, *Goktekin* discloses [12a] for the same reasons as it discloses [1c], because [1c] similarly recites “wherein a first zone of said touchscreen is assigned to an interface of said first application.” See Section XI.A.1.d.

c. [12b] assigning a second zone of said touch screen to an on-screen keyboard; and

164. *Goktekin* discloses assigning a second zone of said touchscreen to an on-screen keyboard.

165. For example, *Goktekin* discloses [12b] for the same reasons as it discloses [1c], because [1c] similarly recites “a second zone of said touchscreen is assigned to said keyboard.” See Section XI.A.1.d.

d. [12c] based on accomplishment of a condition under the control of said keyboard, activating a second application and displaying an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone of said touch screen and

166. *Goktekin* discloses, or at least renders obvious, based on accomplishment of a condition under the control of said keyboard, activating a second application and displaying an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone of said touchscreen.

167. For example, *Goktekin* discloses or renders obvious [12c] for the same reasons as it discloses or renders obvious [1d], because [1d] similarly recites “wherein based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the

second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone.” See Section XI.A.1.e.

- e. **[12d] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touch screen.**

168. *Goktekin* discloses that said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.

169. For example, *Goktekin* discloses [12d] for the same reasons as it discloses [1e], because [1e] similarly recites “wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.” See Section 128.

170. For the reasons above, *Goktekin* discloses or renders obvious every limitation of independent claim 12 and anticipates, or at least renders obvious, the claim.

10. Claim 13. The method of claim 12, comprising using said keyboard with both of said applications.

171. *Goktekin* discloses or renders obvious the method of claim 12 as discussed above. *Goktekin* further discloses that the method comprises using said keyboard with both of said applications.

172. For example, *Goktekin* discloses the additional limitations of claim 13 for the same reasons as claim 3, because claim 3 similarly recites “wherein said keyboard is used with both of said applications.” See Section XI.A.3. Thus, *Goktekin* discloses every limitation of claim 3 and anticipates, or at least renders obvious, the claim.

11. Claim 14. The method of claim 12, wherein at least one of said applications is one of, a text messaging application and an image sharing application.

173. *Goktekin* discloses or renders obvious the method of claim 12 as discussed above. *Goktekin* further discloses that at least one of said applications is one of a text messaging application and an image sharing application.

174. For example, *Goktekin* discloses the additional limitations of claim 14 for the same reasons as claims 7 and 10. See Sections XI.A.6-XI.A.7. As I discuss in connection with claim 7, *Goktekin* discloses that its device provides “SMS” (text messaging) that further may be used with “any ... application requesting text input,” which also encompasses text messaging applications. *Goktekin*, ¶¶[0003], [0034]. Thus, *Goktekin* discloses every limitation of claim 14 and anticipates the claim.

- 12. Claim 18. The method of claim 12, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touch screen.**

175. *Goktekin* discloses or renders obvious the method of claim 12 as discussed above. *Goktekin* further discloses that an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.

176. For example, *Goktekin* further discloses the additional limitations of claim 18 for the same reasons as claim 4, because claim 4 similarly recites “wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.” See Section XI.A.4. Thus, *Goktekin* discloses every limitation of claim 18 and anticipates, or at least renders obvious, the claim.

- 13. Claim 19. The method of claim 18, wherein said information includes at least one of a text, an image, a video, a webpage and a URL.**

177. *Goktekin* discloses or renders obvious the method of claim 18 as discussed above. *Goktekin* further discloses that said information includes at least one of a text, an image, a video, a webpage, and a URL.

178. For example, *Goktekin* discloses the additional limitations of claim 19 for the same reasons as claim 5, because claim 5 similarly recites “wherein said information includes at least one of[] a text, an image, a video, a webpage[,] and a URL.” See Section XI.A.5. Thus, *Goktekin* discloses every limitation of claim 19 and anticipates, or at least renders obvious, the claim.

14. Claim 20. The method of claim 12, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

179. *Goktekin* discloses or renders obvious the method of claim 12 as discussed above. *Goktekin* further discloses that, upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

180. For example, *Goktekin* discloses the additional limitations of claim 20 for the same reasons as claim 2, because claim 2 similarly recites “wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.” See Section XI.A.2. Thus, *Goktekin* discloses every limitation of claim 20 and anticipates, or at least renders obvious, the claim.

15. Claim 21. The method of claim 12, wherein said touch screen is integrated within a mobile communication device.

181. *Goktekin* discloses or renders obvious the method of claim 12 as discussed above. *Goktekin* further discloses that said touchscreen is integrated within a mobile communication device.

182. For example, *Goktekin* discloses the additional limitations of claim 21 for the same reasons as claim 11, e.g., because a “mobile phone” (recited in claim 11) is a “mobile communication device” as recited in claim 21. *See* Section XI.A.8. Further, the touch screen is integrated within a mobile communication device as discussed in claim [1a]. *See* Section XI.A.1.b. Thus, *Goktekin* discloses every limitation of claim 21 and anticipates, or at least renders obvious, the claim.

B. Ground 2: *Goktekin* in View of *Sirpal* (Claims 2, 6, and 20)

183. As I explain above in Sections XI.A.2 and XI.A.14, it is my opinion that *Goktekin*, alone, anticipates or renders obvious claims 2 and 20. But even if *Goktekin* were considered not to anticipate or render the claims obvious, it is my further opinion that they would have been obvious to a POSITA based on *Goktekin* in combination with *Sirpal*. It is also my opinion that the combination renders obvious claim 6.

184. *Sirpal* describes a “multi-screen user device and a universal clipboard application” with an “intuitive user interface” for copying information from one application on a screen of the device to be pasted into another application on another screen. *Sirpal*, Abstract. As background, *Sirpal* notes that a “substantial number of handheld computing devices, such as cellular phones, tablets, and E-Readers, make use of a touch screen display not only to deliver display information to the user but also to receive inputs from user interface commands.” *Sirpal*, ¶[0002]. *Sirpal* explains that the “small form factor of handheld computing devices requires a careful balancing act between the displayed graphics and the area provided for receiving inputs.” *Sirpal*, ¶[0003].

185. Even though *Sirpal* is primarily concerned with using a dual-screen mobile device, a POSITA would readily recognize that its solutions would be adaptable to a single-screen mobile device such as *Goktekin*. This is because *Sirpal* addresses several of the same art-recognized needs as *Goktekin*, which arise in the context of both single-screen and double-screen mobile devices. For example, both references address the need for a mobile device to be used with multiple applications as discussed below.

186. In *Sirpal*, for example, the device “can include at least one operating system (OS) 516, [an] application manager 562, a desktop 566, and/or one or more applications 564a and/or 564b from an application store 560.” *Sirpal*, ¶[0124].

“The OS 516 can be any software, consisting of programs and data, which manages computer hardware resources and provides common services for the execution of various applications 564.” *Sirpal*, ¶[0124]. “The applications 564 can be any higher level software that executes particular functionality for the user” and “can include programs such as email clients, web browsers, texting applications, games, media players, office suites, etc.” *Sirpal*, ¶[0125].

187. Similarly, *Goktekin* teaches that a “mobile device is used as well as a pocket book, a memo book, a calendar with planner, an address book, for receiving and writing SMS and emails and so on,” and that its system may be used with any number of applications, such as “a translation application, a search application such as google search or the like searching for a keyword in the internet, a phone application requesting ... a phone number or a name or for any other application requesting text input.” *Goktekin*, ¶¶[0003], [0034].

188. *Sirpal* and *Goktekin* also share similarities in their discussion of ways to share information from one application to another. *Goktekin* shares text information between applications as discussed above in connection with claims 4 and 5. And *Sirpal* discusses an additional way to share information, namely, through copy/paste functionality. *Sirpal*, ¶¶[0160]-[0169]. As *Sirpal* explains, the ability to copy and paste between applications is common to both “single [and] dual-screen devices”:

Most single or dual-screen devices will allow a user to copy content from one location to another by first selecting an image or text, then accessing a copy/paste menu pop-up window, then selecting the copy command, at which point the device stores the information to a virtual clipboard. To paste the copied content, the user must navigate to the destination location (e.g., the application at which the content will be copied), select the area where the text should be placed, access a copy/paste menu pop-up window, and then select the paste command.

Sirpal, ¶[0168]. *Sirpal* suggests an improvement over other copy/paste functionalities by using a “universal clipboard” from which “a user can choose an item corresponding to already-copied content, and ... execute a paste command.”

Sirpal, ¶[0169]. According to *Sirpal*, its clipboard may be configured to store copied content from “a plurality of different applications (e.g., word-processing applications, email applications, web-browsing applications, spreadsheet applications, media player applications, data sharing applications, file-navigation applications, operating systems, etc.),” and including content “in the form of text content, hyperlinks (e.g., text representations of a URL or pointer), images, file path names, contact information, and/or video content (e.g., the image and/or audio portions thereof).” *Sirpal*, ¶[0162]. Additional information about *Sirpal*’s copy/paste functionalities appears in *Sirpal-000*, which *Sirpal* incorporates by

reference. For example, *Sirpal-000* presents 30 pages describing “Copy & Paste Text, Links[,] and Universal Clipboard.” *Sirpal-000*, 152-82. *Sirpal-000* further notes that in “the current Android model,” users can “copy and paste” any number of items of information “from one app to another”—including “a text message,” “a URL,” and “text in a text field.” *Sirpal-000*, 153. In fact, *Sirpal* specifically describes providing copy/paste functionality to several of the exemplary applications identified by *Goktekin*, including “writing SMS [text messaging] and emails” and “google search [of] the internet” (*Goktekin*, ¶[0034]). See *Sirpal-000*, 158-64 (copying a link from a web page for pasting into an email message), 166-70 (copying text from a web page for pasting into an email), 172-75 (copying text and image from a web page for pasting into an email), 177-82 (copying text from an email application field to a text message application field).

189. Given the foregoing similarities between *Goktekin* and *Sirpal*, including their discussion of electronic mobile devices, implementing multiple applications thereon, and sharing information between such multiple applications, a POSITA would consider references such as *Sirpal* to be pertinent when implementing a multi-modal input system such as *Goktekin* with a mobile electronic device having applications. For example, the *Sirpal* reference provides additional details about how to manage multiple applications on and touch inputs to a mobile device (e.g., *Sirpal*, ¶¶[0124]-[0130]), which a POSITA would find

useful when implementing *Goktekin*'s systems. A POSITA would have been motivated to consult *Sirpal* to provide a way to “activate[]” the text input field of an application or implement SMS or email applications as *Goktekin* teaches to do, as well as to provide additional ways to share information between applications.

1. Claims 2 and 20

190. It is my opinion that claims 2 and 20 would have been obvious over *Goktekin* in view of *Sirpal*.

191. *Sirpal* discloses giving system focus to an interacted application upon interacting with the interface of the application, as required by claims 2 and 20. For example, *Sirpal* discloses a mobile device system with a “[d]ual screen, portrait, two apps [*cyan* and *orange* below], [and] one *keyboard* that spans both apps and operates within an app depending on focus.” *Sirpal-000*, 147. As *Sirpal* explains, “[t]he user can tap [one] screen to move the focus to that screen”—a feature that “allows the user to tap back and forth to enter text in both screens in a seamless fashion.” *Sirpal-000*, 147.



Sirpal-000, 147 (annotated)

192. As I explain above (paragraphs 184-189), a POSITA would have been motivated to combine the teachings of *Sirpal* with *Goktekin*. In particular, a POSITA would have been motivated to provide *Sirpal*'s known technique for switching the focus of a text-input system between applications—i.e., through tapping the applications—at least because the known technique advantageously “allows the user to tap back and forth to enter text in both screens in a seamless fashion.” *Sirpal-000*, 147. That feature would have been advantageous, because it would streamline a user's experience as he or she navigated between active applications, minimizing the time and burden required to do so.

193. To illustrate those advantages, I note that the combination of *Goktekin* with *Sirpal* would yield a system in which the user could select (by a touch interaction) which of the first application (e.g., the translation application illustrated in *Goktekin*, Figs. 1a-1b) or second application (e.g., the camera mode

application) the user wants to receive the focus of the system. Interacting with the first application interface would direct system to focus the system's touch interface on the first application—meaning that touch inputs would be registered by the first application so the first application can process those inputs accordingly. The same would be true of interacting with the second application interface. The resulting system would ensure that the focus of the input system(s) is/are properly directed to an interacted application. If a user has touched a text entry box (3b) in the first application (notes application), the system would understand to direct the focus of the keyboard toward entering text into that first application (so text may be typed into the text entry box), whereas if the user has touched the camera mode application interface (e.g., OCR text 6), then the system would understand to direct system focus to the camera mode to cause its text to be output to the first application. A POSITA would have been motivated to make the modification for this additional reason.

194. Moreover, due to their similarities (paragraphs 184-189), a POSITA would have recognized that the similar device of *Goktekin* could be improved using the same focus-switching methods of *Sirpal*, and a POSITA would have found the combination obvious. Further, to a POSITA, the process of combining *Sirpal*'s focus-switching method with *Goktekin* would have represented nothing more than applying a known technique to address a known problem (e.g.,

navigating between applications) using prior-art techniques of *Sirpal* according to their established functions. Thus, a POSITA would have been motivated to make the modification.

195. Furthermore, a POSITA would have had a reasonable expectation of success in combining the references. In my opinion, combining the teachings of *Goktekin* and *Sirpal* would have required no more than ordinary skill because the combination would have been a simple modification of existing components (GUI interface for mobile electronic device applications) in a straightforward manner to achieve predictable results. Furthermore, a POSITA would have had a reasonable expectation of success in combining the teachings of *Goktekin* and *Sirpal* for several reasons. For example, the references have several overall similarities—e.g., both references relate to user interfaces for touchscreen mobile devices. See paragraphs 96 and 99 above. Additionally, the *Goktekin* and *Sirpal* references include overlapping functionalities, including the implementation of multiple applications on a touchscreen mobile device (as discussed above in paragraphs 185-189). Further, a POSITA would have found it relatively easy to integrate *Sirpal*'s focus-switching techniques into *Goktekin*'s system (e.g., because *Sirpal* describes using the techniques on a common mobile operating system (Android OS) and a POSITA would understand to make similar changes to

Goktekin's operating system to implement *Sirpal*). See *Sirpal-000*, 153 (discussing "current Android model" being improved by *Sirpal*).

196. Because the combination yields "wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application," as discussed above, the combination of *Goktekin* and *Sirpal* provides every limitation of claims 2 and 20. Accordingly, claims 2 and 20 would have been obvious over *Goktekin* in view of *Sirpal*.

2. Claim 6. The system of claim 4, wherein said information is copied from one of said applications and pasted in the other application.

197. It is my opinion that claim 6 would have been obvious over *Goktekin* in view of *Sirpal*. *Goktekin* discloses or renders obvious the system of claim 4, as I discuss above in Section XI.A.4. Claim 6 further requires "said information [to be] copied from one of said applications and pasted in the other application." *Sirpal* discloses this additional limitation.

198. *Sirpal* notes that "[m]ost single or dual-screen devices will allow a user to copy content from one location to another," and suggests that its "universal clipboard" offers improvements upon that known feature. *Sirpal*, ¶¶[0168]-[0169]. *Sirpal* further incorporates by reference *Sirpal-000*, which provides additional detail and illustration of the functionality of "Copy & Paste Text, Links[,] and Universal Clipboard." *Sirpal-000*, 152-82. As *Sirpal* explains, in "the current

Android model,” users can “copy and paste” any number of items of information “from one app to another”—including “a text message,” “a URL,” and “text in a text field.” *Sirpal-000*, 153; *see also Sirpal-000*, 154 (§ 3.2.2 listing items of information and source/target applications for copy/paste functionality). To that existing Android model, *Sirpal* further provides “more efficient copy via drag and drop[and] direct manipulation.” *Sirpal-000*, 153.

199. In operation, *Sirpal* permits a user either to copy text to a clipboard (for pasting later) or copy text with a “two finger press and hold gesture, which puts the item in move mode, and allows the user to move/paste the item to any available drop zone,” e.g., for “images, links, paragraphs of text, messages, etc.” *Sirpal-000*, 155 (further describing option to “select [a copied] item from the Universal Clipboard to paste”). *Sirpal* specifically illustrates numerous examples of copying information from one application to another, including copying a link from a web page for pasting into an email message (*Sirpal-000*, 158-64), text from a web page for pasting into an email (*Sirpal-000*, 166-70), text and image from a web page for pasting into an email (*Sirpal-000*, 172-75), and text from a field (e.g., in an email application) to another field (e.g., in a text message application) (*Sirpal-000*, 177-82).

200. As discussed above (paragraphs 184-189 and 192-195), a POSITA would have been motivated to combine the teachings of *Sirpal* with *Goktekin*, at

least to provide *Sirpal*'s feature of switching focus between applications. A POSITA further would have been motivated to provide *Sirpal*'s known technique for sharing information between applications—i.e., through copy/paste functionalities. A POSITA would be very familiar with the fact that known copy/paste techniques allow a user more refined control over the information being transferred. Specifically, a user can control *which* information to copy from one application and then choose later precisely *where* and *when* to paste the copied information into another application.

201. For example, in the combined system, a user would copy OCR text information from an image in *Goktekin*'s camera mode application, and then select a field in another application (potentially one of several fields or applications) to paste the text information—yielding “wherein said information is copied from one of said applications and pasted in the other application.” *Sirpal-000*, 171-75 (illustrating copy/paste from one application into the field of another). A user would have considered this feature to be advantageous in many situations. For example, a user may see an object with text that he or she wishes to capture using *Goktekin*'s camera mode application, perhaps because the user wishes to translate the text in *Goktekin*'s translation application. The user can capture that image and its text *first*, and then *later* open the translation application to have the captured information translated. As another example, *Goktekin*'s first application may

include multiple text entry areas. A user may wish to choose which of those text entry areas should receive text information captured via *Goktekin*'s camera text input application. *Sirpal*'s copy/paste functionality would allow the user to make such a choice.

202. Moreover, due to their similarities (paragraphs 184-189), a POSITA would have recognized that the similar device of *Goktekin* could be improved using the same copy/paste functionality of *Sirpal*, and a POSITA would have found the combination obvious. Further, to a POSITA, the process of combining *Sirpal*'s copy/paste method with *Goktekin* would have represented nothing more than applying a known technique to address a known problem (e.g., selectively transferring information from one application to another) using prior-art techniques of *Sirpal* according to their established functions.

203. Furthermore, a POSITA would have had a reasonable expectation of success in combining the references. In my opinion, combining the teachings of *Goktekin* and *Sirpal* would have required no more than ordinary skill because the combination would have been a simple modification of existing components (GUI interface for mobile electronic device applications) in a straightforward manner to achieve predictable results. Furthermore, a POSITA would have had a reasonable expectation of success in combining the teachings of *Goktekin* and *Sirpal* for several reasons. For example, the references have several overall similarities—e.g.,

both references relate to user interfaces for touchscreen mobile devices. *See* paragraphs 96 and 99 above. Additionally, the *Goktekin* and *Sirpal* references include overlapping functionalities, including sharing information between applications (as discussed above in paragraphs 185-189). Further, a POSITA would have found it relatively easy to integrate *Sirpal*'s copy/paste techniques into *Goktekin*'s system (e.g., because *Sirpal* describes using the techniques on a common mobile operating system (Android OS) and a POSITA would understand to make similar changes to *Goktekin*'s operating system to implement *Sirpal*). *See Sirpal-000*, 153 (discussing "current Android model" being improved by *Sirpal*).

204. Because the combination yields "wherein said information is copied from one of said applications and pasted in the other application," as discussed above, the combination of *Goktekin* and *Sirpal* provides every limitation of claim 6. Accordingly, claim 6 would have been obvious over *Goktekin* and *Sirpal*.

C. Ground 3: *Goktekin* in View of *Vincent* (Claims 8 and 15)

205. It is my opinion that claims 8 and 15 would have been obvious over *Goktekin* in view of *Vincent*.

1. **Claim 8. The system of claim 1, wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application.**

206. *Goktekin* discloses or renders obvious the system of claim 1, as I discuss above in Section XI.A.1. Claim 8 further requires “wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application.” *Vincent* discloses this additional limitation.

207. *Vincent* describes “Using Extracted Image Text.” *Vincent*, Title. *Vincent* describes several features to improve the text recognized in a captured image. For example, *Vincent* describes that “character recognition is constrained by particular business names within a database,” e.g., constrained to search for “McDonalds, Fry’s Electronics, H&R Block, and Pizza Hut, within the images,” or for business information “based on a directory listing ... for [an] address range.” *Vincent*, 11:54-12:7. Additional details of *Vincent*’s use of a searchable database to constrain OCR results are presented in “U.S. patent application Ser. No. 11/305,694 filed on Dec. 16, 2005, and entitled ‘Database Assisted OCR for Street Scenes,’ which [*Vincent*] incorporate[s] by reference.” *Vincent*, 11:54-60; see Ex. 1075 (U.S. Patent No. 7,917,286 issued from Application No. 11/305,694).

208. In view of the foregoing, a POSITA would understand from *Vincent* that search functionality for OCR-recognized text can return filtered results matching entries in a database (e.g., a database of business names or a directory of relevant business information). Constraining OCR search to a relevant database would improve the quality of OCR results.

209. In addition, a POSITA would recognize that *Vincent* addresses some of the same art-recognized needs as *Goktekin*, such as for a mobile device to provide search functionalities. *Goktekin*, ¶[0034] (“search application such as google search or the like searching for a keyword in the internet”); *Vincent*, 2:29-37 (“method includes receiving an input of one or more image search terms identifying keywords from the received one or more image search terms [and] searching a collection of keywords including keywords extracted from image text”), 14:63-66 (system “can be performed by one or more programmable processors executing one or more computer programs to perform functions”), 15:16-19 (a computer running the system “can be embedded in another device, e.g., a mobile telephone, a personal digital assistant (PDA), ... to name just a few”). More specifically, a POSITA would recognize that *Vincent*’s improvements would enhance *Goktekin*’s existing OCR technology, as well as provide an art-recognized implementation of the search functionality that *Goktekin* already describes.

210. Obvious combinations of *Goktekin* with *Vincent* would, for example, use *Goktekin*'s button-activated camera mode to capture text and then filter or constrain potential OCR results based on searching "values in a database," including "particular business names within a database," as taught by *Vincent*. *Vincent*, 11:54-12:7. Following the existing design of *Goktekin*, the (now-improved) OCR results could then be presented to the user within the camera text input application interface (e.g., in the "third field 6" illustrated in *Goktekin*, Fig. 1b), allowing the user to select the OCR result to be entered as text within the first application (e.g., the translation application illustrated in *Goktekin*, Figs. 1a-1b). A POSITA would recognize that the combination would achieve benefits described in *Vincent*, including to filter/constrain OCR suggestions within *Goktekin*'s camera mode application based on searching the contents of a database, thereby resulting in improved and/or more relevant OCR results. A POSITA would be motivated to make the combination for that reason.

211. A POSITA would recognize that the foregoing combination of *Goktekin* and *Vincent* would yield a system in which *Goktekin*'s existing button-activated camera mode application would be a "search application," as claimed, because it would search relevant database(s) to constrain OCR hits to relevant results. Notably, *Goktekin* already indicates that its method for camera module text entry can be used with any number of applications, including "a search application

such as google search or the like searching for a keyword in the internet, ... or for any other application requesting text input.” *Goktekin*, ¶[0034]. Given that disclosure, a POSITA would have been motivated to consult *Vincent* for its disclosure of a camera-based search application—particularly because *Vincent* is assigned on its face to Google, Inc., the company whose “search application” *Goktekin* specifically identifies. *Goktekin*, ¶[0034].

212. Moreover, the combination yields “a search application activated by interacting with a button of said keyboard assigned to activating said search application,” because *Goktekin*’s camera text input application (which, as modified, is a “search application”) is activated using an assigned keyboard button as discussed in connection with claim [1d].

213. A POSITA would have reasonably expected to succeed in making the combination because combining the teachings of *Goktekin* and *Vincent* would have required no more than ordinary skill. This is because the combination would have been a simple modification of existing components (OCR system) in a straightforward manner to achieve predictable results. Furthermore, combining *Goktekin* with *Vincent* would have had a reasonable expectation of success for several reasons. For example, the references have several overall similarities—e.g., both references relate to user interfaces for touchscreen mobile devices. See paragraphs 96 and 104 above. Additionally, the *Goktekin* and *Vincent* references

include overlapping functionalities, including providing search functionality in a mobile electronic device (as discussed in paragraph 209 above). Further, a POSITA would have found it relatively easy to integrate *Vincent*'s improved OCR system into *Goktekin*'s system. After all, *Goktekin* already discloses using OCR technology and "search." Thus, using search to improve *Goktekin*'s OCR technology could be implemented using software changes to existing software, along with the implementation of databases that, as evidenced by *Vincent*, also were already known.

214. For the foregoing reasons, the combination of *Goktekin* in view of *Vincent* yields "wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application." Accordingly, claim 8 is obvious.

2. **Claim 15. The method of claim 12, wherein said interface of said second application is displayed on the touch screen by using a search application activated by providing a predefined interaction with a button of said keyboard that is related to activating said search application.**

215. *Goktekin* discloses or renders obvious the method of claim 12 as discussed above. *Vincent* discloses the further limitations of claim 15 and, in combination with *Goktekin*, renders claim 15 obvious for at least the same reasons as claim 8. See Section XI.C.1.

216. In particular, as discussed in section XI.C.1, in the combination of *Goktekin* with *Vincent*, it would be obvious to implement the camera mode application as a “search application.” Furthermore, *Goktekin* teaches that the camera mode application is activated via a button—camera mode key 8—as discussed in connection with claim [1d]. Thus, the combination yields the “interface of said second application is displayed on the touch screen by using a search application activated by providing a predefined interaction with a button of said keyboard that is related to activating said search application,” as recited in claim 15.

D. Ground 4: *Goktekin* in View of *Vincent* and *Aravamudan* (Claims 9, 16, and 17)

217. It is my opinion that claims 9, 16, and 17 would have been obvious over *Goktekin* in view of *Vincent*, further in view of *Aravamudan*.

1. Claim 9. The system of claim 8, wherein said search application use at least one keyword typed through said keyboard.

218. *Goktekin* and *Vincent* render obvious the system of claim 8, as I discuss above in Section XI.C.1. Claim 9 further requires “wherein said search application use[s] at least one keyword typed through said keyboard.” *Aravamudan* discloses this additional limitation.

219. *Aravamudan* describes a search application using *both* image-based and keypad-based inputs. As illustrated below, “FIG. 2 illustrates the flow of input to the search engine and the transformation/extraction steps of speech and image input to text (such as could be provided by a multi-mode input interface, e.g., as in FIG. 5). The text input 201 by the user, in a text box interface, could be fed to the search engine system 211.” *Aravamudan*, ¶[0037]. Additionally, “[i]mage/video input 202, captured on [the] device by the mobile device camera[,] could be scanned for text by a text extraction module 204,” and “the extracted text is sent to text input interface (at 207) and, optionally, consolidated with other text input forms 206.” *Aravamudan*, ¶[0038]. Thus, *Aravamudan* provides the ability, after an OCR text extraction is completed, to “edit the terms before feeding it to text search 212.” *Aravamudan*, ¶[0038]. From this disclosure, a POSITA would recognize that *Aravamudan* provides advantages. Specifically, *Aravamudan* provides the ability to *type* keywords in order to correct, supplement, or otherwise modify search keywords after the keywords are generated by OCR. In this manner, *Aravamudan* offers an improvement upon methods limited only to generating keywords via OCR.

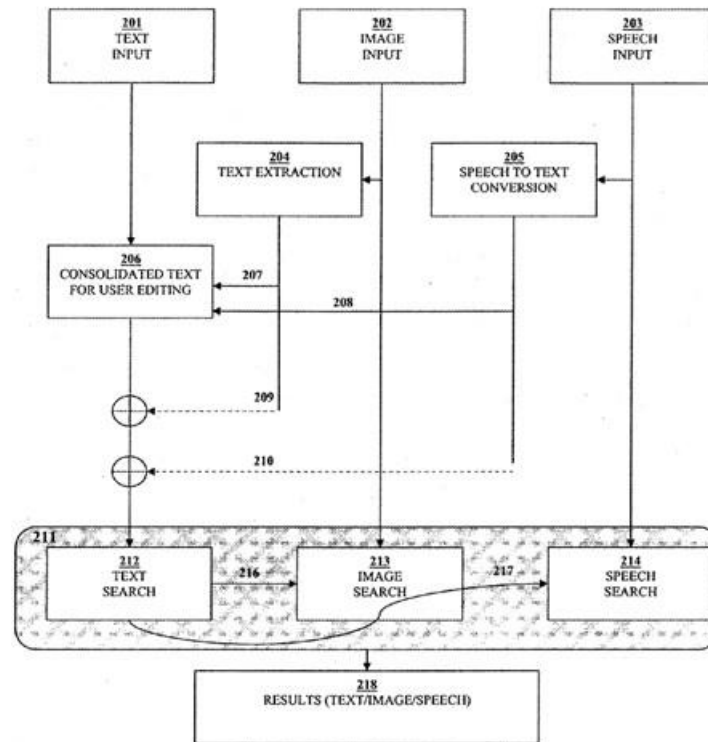


FIG. 2

Aravamudan, Fig. 2

220. *Aravamudan* teaches that its system may be implemented on any “computer program product for use with a computer system or computerized electronic device (e.g., Smartphone, PDA, tablet computing device, etc.).”

Aravamudan, ¶[0059]. A POSITA thus would recognize that *Aravamudan*’s features may be implemented with the computerized electronic device of *Goktekin*.

221. In view of the foregoing, a POSITA would have found it obvious to provide the combination of *Goktekin* and *Vincent* with the additional features of *Aravamudan*, to yield “wherein said search application use[s] at least one keyword typed through said keyboard,” as claimed.

222. The obvious combination of *Goktekin* and *Vincent* (see paragraphs 210-212) would yield OCR search results based on a scanned image (*Goktekin*) as constrained by a relevant database (*Vincent*). To that combination, *Aravamudan* would add the ability to edit OCR-recognized keywords and/or add typed keywords, which may be used to further improve or refine search results. For example, when an initial OCR suggestion is provided (such as in field 6 of *Goktekin*'s camera text input application (Figure 1b)), a user may not be satisfied with the completeness or accuracy of the suggestion and, thus, may not wish to use the suggestion as input text into *Goktekin*'s first application. To fix that problem, *Aravamudan*'s method would permit the user to correct or add keywords to the OCR suggestion using the keyboard. The corrected/added keywords may then be checked against *Vincent*'s database to retrieve a better or more complete/accurate suggested hit. Thus, the combination would yield "wherein said search application use[s] at least one keyword typed through said keyboard."

223. A POSITA would have been motivated to combine such feature(s) with the combined disclosures of *Goktekin* and *Vincent*, as an obvious and intuitive way to provide additional flexibility to a user, to provide the ability for follow-up searches, and/or to edit or refine a keyword or search result generated from an image scan or search. Long before the '922 patent was filed, providing the feature of typing a keyword through a keyboard was routine and conventional to a

POSITA (as well as to a user of a device). Moreover, a POSITA would have recognized that providing the ability to type keywords for search would allow the search application to function even when a suitable image cannot be taken or is otherwise unavailable. Furthermore, *Goktekin* already provides that the keyboard may be used as an alternative way to enter text. *Goktekin*, ¶¶[0032]-[0033], [0046]. A POSITA would reasonably expect success making the combination because simply extending *Goktekin*'s existing keyboard text entry functionality to accommodate entering a keyword into the search application as taught by *Aravamudan* would be a straightforward, intuitive modification, requiring no more than ordinary skill.

224. The combination of *Goktekin* in view of *Vincent*, further in view of *Aravamudan*, would yield the added ability to type keywords to supplement the image-based search application. Thus, the combination yields "wherein said search application use[s] at least one keyword typed through said keyboard," and claim 9 is obvious.

2. Claim 16. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard.

225. It is my opinion that claim 16 would have been obvious over *Goktekin* in view of *Vincent*, further in view of *Aravamudan*. As I discuss above in Section XI.C.2, *Goktekin* in view of *Vincent* renders obvious the method of

claim 15. *Aravamudan* further discloses the additional limitations of claim 16 for the same reasons as claim 9 and, thus, the combination renders obvious claim 16.

See Section XI.D.1.

3. Claim 17. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard after said search application is activated.

226. It is my opinion that claim 17 would have been obvious over *Goktekin* in view of *Vincent*, further in view of *Aravamudan*. As I discuss above in Section XI.C.2, *Goktekin* in view of *Vincent* renders obvious the method of claim 15. *Aravamudan* further discloses the additional limitations of claim 17 for the same reasons as claim 16 and, thus, the combination renders obvious claim 17. See Section XI.D.2.

227. As compared to claim 16, claim 17 further requires that the keyword be typed “after said search application is activated.” As discussed in Section XI.D.1, *Aravamudan* teaches to type keywords *after* an OCR/search application has already begun to recognize characters (i.e., the OCR/search application has already been activated); therefore, the combination further yields typing the keyword “after said search application is activated.”

E. Ground 5: *Koch* Anticipates and/or Renders Obvious Claims 1-5, 7, 10-14, and 18-21

228. In my opinion, *Koch* anticipates or at least renders obvious claims 1-5, 7, 10-14, and 18-21.

1. Independent Claim 1

a. [1pre] A system for using multiple applications on a screen of a device, comprising:

229. To the extent the preamble is limiting, *Koch* discloses a system for using multiple applications on a screen of a device.

230. For example, *Koch* discloses that its “device typically supports a variety of applications,” including “a drawing application,” “a word processing application,” “a telephone application,” “an e-mail application, an instant messaging application,” and “a web browsing application.” *Koch*, ¶¶[0107], [0135]-[0153]. The device includes means to “indicat[e] which applications, if any, are currently active” and “what applications, views[,], or other information occupy various regions of touch screen display 112.” *Koch*, ¶[0126]. Further, *Koch* describes simultaneously using a “user interface in [a first] application (e.g., a notes application, a web browser application, etc.),” and a “center area 5016-C” application appearing between two halves of a keyboard, as I discuss in [1b] and [1d] below. *Koch*, ¶¶[0231]-[0235].

b. [1a] an electronic device having a touchscreen;

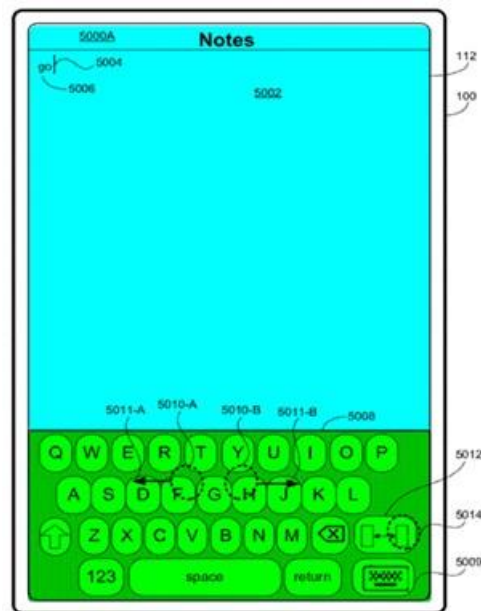
231. *Koch* discloses an electronic device having a touchscreen.

232. For example, *Koch* discloses improvements to “electronic devices with touch-sensitive surfaces” “(also known as a ‘touch screen’ or ‘touch screen display’).” *Koch*, ¶[0008].

c. [1b] an on-screen keyboard for entering text in a first application running within said device

233. *Koch* discloses an on-screen keyboard for entering text in a first application running within said device.

234. For example, *Koch* discloses a first application with “**user interface (UI) 5000A**,” which “may be a user interface in an application (e.g., a notes application, a web browser application, etc.) on device 100,” and “includes text entry area 5002.” *Koch*, ¶[0231]. *Koch* further provides an “**[u]nsplit soft keyboard 5008** ... displayed on display 112.” *Koch*, ¶[0232]. According to *Koch*, “soft keyboards [are] for entering text in various applications (e.g., contacts 137, e-mail 140, IM 141, browser 147, and any other application that needs text input).” *Koch*, ¶[0133]. As illustrated below, Figure 5A shows the keyboard on the screen of the device. Thus, *Koch*’s keyboard 5008 is “an on-screen keyboard for entering text in a first application running within said device,” and *Koch* discloses this limitation.

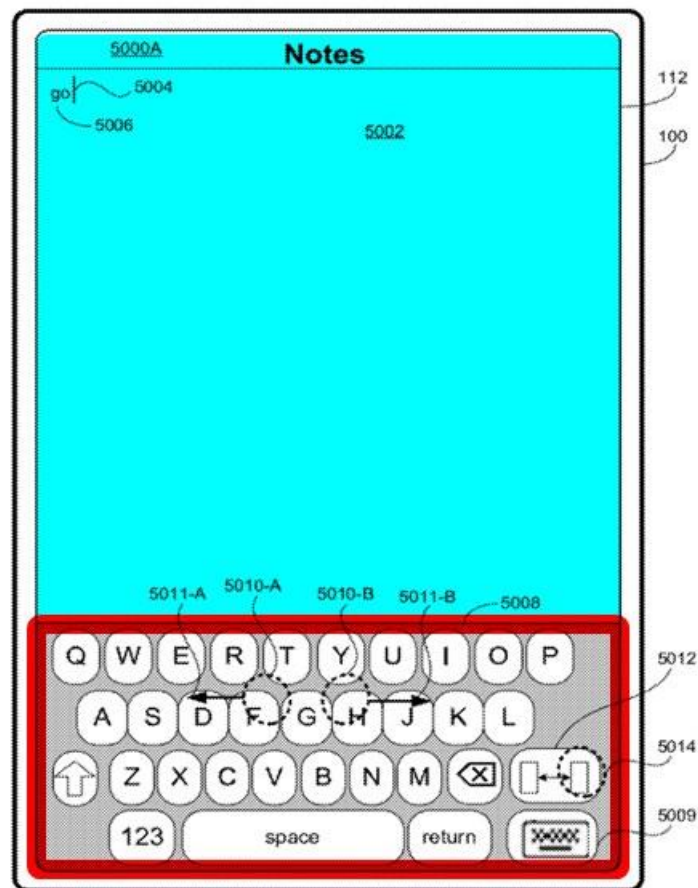


Koch, Fig. 5A (annotated)

- d. [1c] wherein a first zone of said touchscreen is assigned to an interface of said first application and a second zone of said touchscreen is assigned to said keyboard; and

235. *Koch* discloses that a first zone of said touchscreen is assigned to an interface of said first application and a second zone of said touchscreen is assigned to said keyboard.

236. For example, as illustrated below, *Koch*'s **first application interface** appears on an upper portion of the touchscreen, while its **keyboard** appears on a lower portion. A POSITA would understand the location of the first application interface to be a "first zone" and the location of the keyboard to be a "second zone," as claimed, at least because each interface appears on a different physical location on the touchscreen.



Koch, Fig. 5A (annotated)

237. A POSITA further would understand that each graphical object appearing on *Koch*'s screen (e.g., the application interface and keyboard) is "assigned" by the system to its physical location or "zone." This is because an electronic computer device with a screen necessarily includes computer code that prescribes where on the screen any given element (such as an application GUI or keyboard GUI) is to appear. Quite simply, that is how the device knows where each element is to be displayed. Moreover, without code assigning each graphical object to a location (or "zone"), a touchscreen device such as *Koch*'s would be

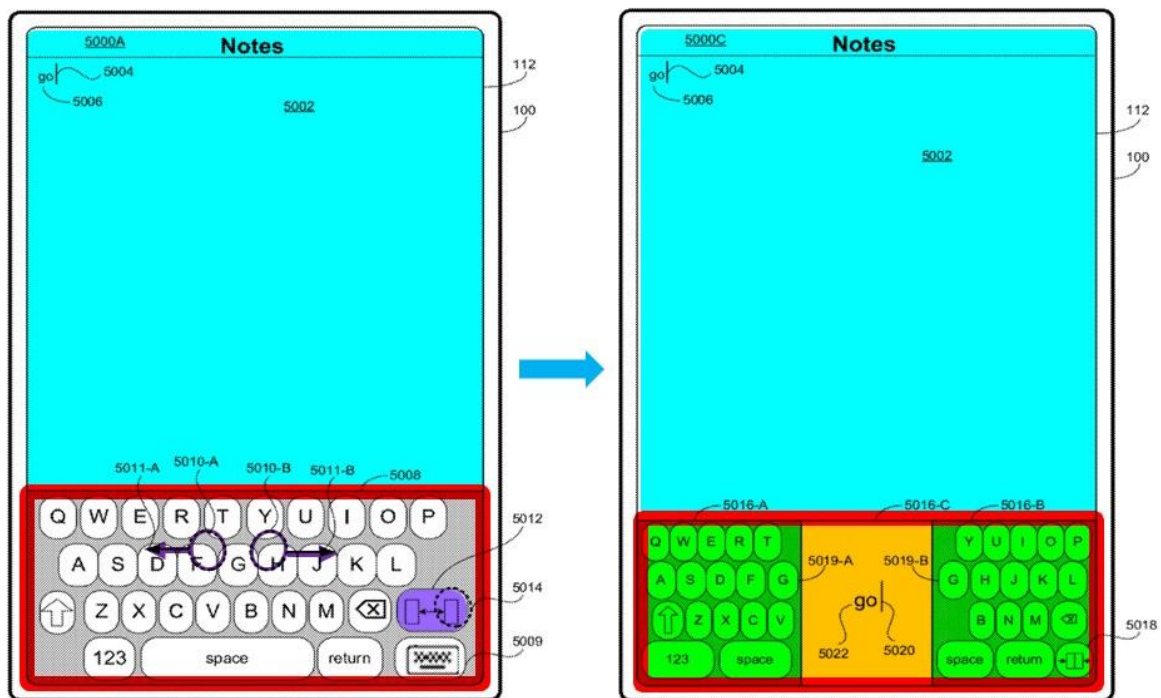
unable to correlate to *which* object(s) or interface(s) (if any) a user's touch interaction on the touchscreen should apply, and the device would be non-functional. See *Koch*, ¶[0180] (“[h]it view determination module 172 ... for determining where a sub-event [touch] has taken place within one or more views, when touch sensitive display 112 displays more than one view”). In the absence of such a zone assignment, for example, typing on the keyboard would not work because the device would not know which key corresponds to a touch interaction on a given portion of the screen.

238. Thus, *Koch*'s first application interface and keyboard are inherently “assigned” to a first zone and second zone, respectively.

- e. **[1d] wherein based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone, and**

239. *Koch* discloses or at least renders obvious that, based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone.

240. For example, Koch discloses “**gestures** that, if detected, activate splitting of unsplit soft keyboard 5008 in response.” Koch, ¶[0233], Fig. 5A (below-left). Specifically, “[**g**]**esture 5010** is a two-finger de-pinch gesture performed on unsplit soft keyboard 5008” and “**gesture 5014** is a tap gesture on keyboard split key 5012.” Koch, ¶[0233], Fig. 5A. Both gestures are conditions under the control of said keyboard.



Koch, Figs. 5A, 5C (annotated)

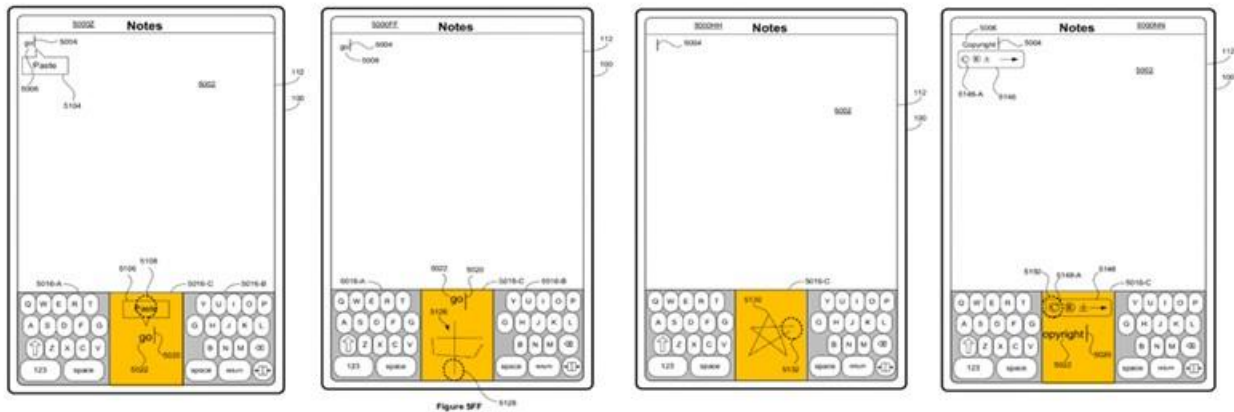
241. In response to detection of either gesture (based on accomplishment of the condition), “device 100 changes unsplit soft keyboard 5008 (FIG. 5A) into integrated input area 5016 (FIG. 5C),” thereby “activat[ing]” “**center area 5016-C** between **split keyboard portions 5016-A and 5016-B**,” as illustrated above-right.

Koch, [0233]-[0235]; *Koch*, ¶[0233] (keyboard gesture “activate[s] splitting”).

Koch “activates” the center-area application by making it an “active application,” i.e., making it an application “which is currently being interacted with, and thus will be affected by actions such as keyboard input” and which “occupies the active window on the screen.” Ex. 1066, 10 (definition of “active application”). As illustrated above in Figure 5C, pressing the keyboard split button has made the center-area application an “active application” because it is visible and can be interacted with—for example, (a) by interacting with text, images, or objects displayed on the application; or (b) through the text typed via the keyboard—as discussed below.

242. The **center area 5016-C** is an interface for an application that performs several tasks based on interactions from the user. For example, the interface may provide (1) “text editing controls (e.g., icons, or graphical or user interface objects for selecting, cutting, copying, and/or pasting text)” (illustrated in Figs. 5Z-5AA); (2) an interface for handwriting recognition (Figs. 5FF-5GG); (3) an interface to input drawings (Figs. 5HH-5II); and (4) an interface to input Unicode characters (Figs. 5NN-5OO). *Koch*, ¶¶[0261]-[0262], [0266]-[0267], [0272]-[0273], [0380]-[0381], [0387]-[0389], [0394]-[0395]. Thus, *Koch*’s center

area is an interface for a computer program¹³ that assists in the performance of the foregoing tasks and is an interface for a “second application.”



Koch, Figs. 5Z, 5FF, 5HH, 5NN (annotated)

243. The **split keyboard** is smaller than the **original keyboard** and, thus, is a “reduced interface corresponding to said keyboard,” as *Koch* illustrates in the transition from Figure 5A to Figure 5C depicted above in paragraph 240. And as illustrated, both the center area and split keyboard are displayed on at least a portion of the second zone.

¹³ *Koch*’s device includes a computer with a processor to execute such programs.

See, e.g., Koch, ¶[0507] (stating that the “methods described above may be implemented by running one or more functional modules in information processing apparatus such as general purpose processors or application specific chips”).

244. Finally, it is my opinion that even if *Koch*'s center area were not considered to be an interface for a second "application," it would have been obvious to implement it as such. A POSITA implementing any functionality on a mobile electronic device, such as the tasks performed via the center area of *Koch*, would have understood to provide the functionality as some form of computer programming code or module, which includes instructions to perform the task(s) called for by the function. Whether such code is implemented as its own "application" or as a component (e.g., service, sub-routine) of the operating system or the operating system's keyboard was entirely a matter of design choice and, to some extent, a matter of semantics. Either implementation was well within the capabilities of a POSITA and would have been reasonably likely to achieve successful, predictable results.

245. Specifically in the case of *Koch*'s center area, a POSITA would have had the choice to implement the foregoing tasks (e.g., drawing, handwriting recognition) via an "application" or as a subcomponent or service of the operating system or the operating system's keyboard. At the time, it was conventional to perform drawing and handwriting recognition tasks, such as performed via *Koch*'s center area interface, with an "application." Indeed, *Koch* itself describes that "the device has a graphical user interface (GUI), one or more processors, memory and one or more modules, programs or sets of instructions stored in the memory for

performing multiple functions,” and that “[i]n some embodiments, the functions may include ... drawing.” *Koch*, ¶[0008]. “Executable instructions for performing these functions may be included in a non-transitory computer readable storage medium or other computer program product configured for execution by one or more processors.” *Id.* Another contemporaneous document, *Bower* (filed on February 8, 2007, and issued March 22, 2011, before the ’922 patent application was filed), describes a handwriting recognition function for a mobile electronic device, including “an electronic handwriting application.” *Bower*, 3:19-24; *see also* 11:42-47 (system “may reside and operate on ... a mobile computing device”). As another example, *Liow* (published in 2005) discloses a mobile device with “handwriting recognition application ... and a hand-written character recognition application.” *Lowe*, ¶[0007]. In short, implementing *Koch*’s center area functions via an “application” was one of a finite number of identified, predictable solutions to providing accomplishing the identified tasks (e.g., drawing and handwriting recognition); therefore, providing the feature would have been at least obvious to a POSITA.

246. In addition, a POSITA would have had ample motivation to implement *Koch*’s handwriting/drawing tasks via an “application” to achieve several known advantages. As noted above in paragraph 245, it was well known to provide handwriting/drawing functionality via an application. Thus, a consumer is

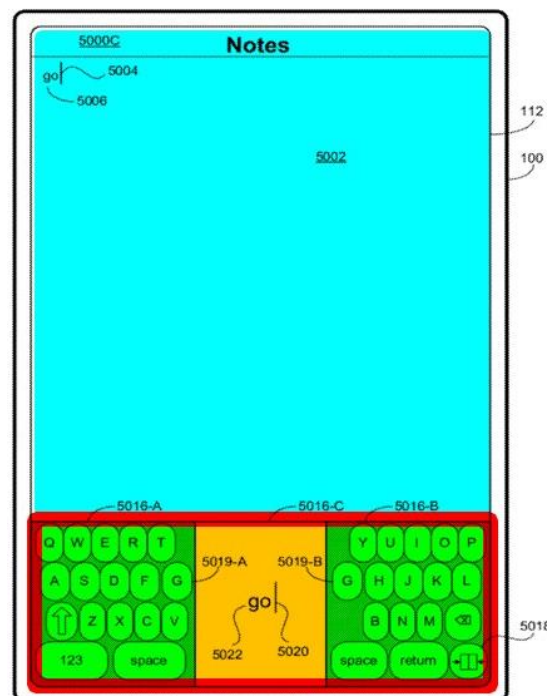
likely to be familiar with how a mobile device's handwriting/drawing application operates and to have preexisting expectations about that operation. Using and/or modifying the preexisting handwriting/drawing application would more likely meet those expectations than would generating a new (unfamiliar) handwriting/drawing subcomponent or service within the operating system or keyboard. More significantly, implementing *Koch's* handwriting/drawing functionalities via an application would achieve efficiencies with respect to system and coding resources. Because *Koch's* center area calls upon handwriting/drawing functionalities, a POSITA would recognize that he or she could most efficiently utilize system and coding resources by exploiting existing handwriting/drawing applications, rather than by coding handwriting/drawing subcomponents or services within the *operating system* or *keyboard program*. Coding handwriting/drawing features as subcomponents/services would (a) require significantly more effort and specialized knowledge (such as knowledge of drawing software and/or handwriting recognition algorithms) than simply utilizing existing handwriting/drawing applications and (b) create the potential for bloat in the operating system or keyboard programming by adding resources that may not necessarily be needed by other aspects of the mobile device. Finally, because handwriting/drawing applications were so well known, a POSITA would have had a reasonable expectation of success when implementing *Koch's*

handwriting/drawing tasks via an application. For all these reasons, the feature would have been obvious, in my opinion.

- f. **1[e] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.**

247. *Koch* discloses that said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.

248. For example, as I discuss above in [1d] and as illustrated below, each of the **first application interface**, **second application interface**, and **reduced keyboard interface** is simultaneously displayed.



Koch, Fig. 5C (annotated)

249. For the reasons above, *Koch* discloses every limitation of independent claim 1 (or at least renders obvious [1d]) and, in my opinion, *Koch* anticipates, or at least renders obvious, the claim.

2. Claim 2. The system of claim 1, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

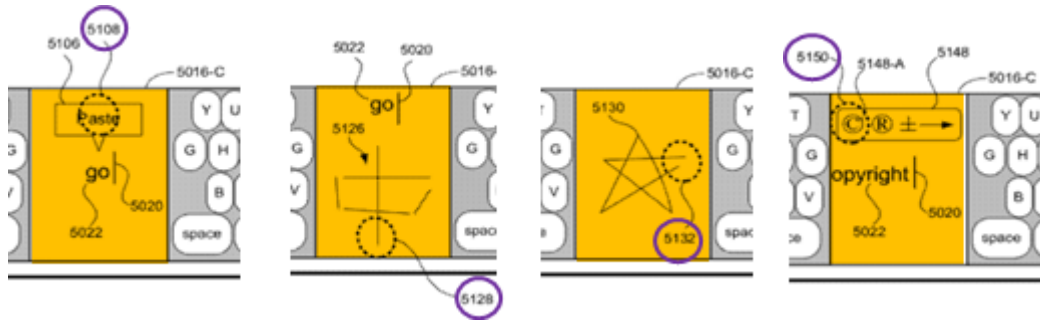
250. *Koch* discloses or renders obvious the system of claim 1 as discussed above. *Koch* further discloses that, upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

251. In several ways, *Koch* describes that its system gives the focus of the system to an interacted application, upon the interaction. For example, *Koch* describes an “event handling” process using an “[e]vent sorter 170 [that] receives event information and determines the application 136-1 and application view 191 of application 136-1 to which to deliver the event information.” *Koch*, ¶¶[0174]-[0175]. “Event information” includes information about a touch interaction. *Koch*, ¶¶[0129]-[0130], [0177]. *Koch*’s event sorter further includes a “hit view determination module 172 and/or an active event recognizer determination module 173.” *Koch*, ¶[0179]. The hit view determination module 172 “determin[es] where a sub-event [touch] has taken place within one or more views, when touch sensitive display 112 displays more than one view,” which allows the

system to determine which of any number of application interfaces has received a touch interaction and “should handle the [touch] sub-event.” *Koch*, ¶¶[0180], [0182]. Further, the “[a]ctive event recognizer determination module 173 determines which [application] view or views within a view hierarchy should receive a particular sequence of sub-events.” *Koch*, ¶[0183]. Both of *Koch*’s hit view determination module 172 and its active event recognizer determination module 173 operate to assign the focus of the system—specifically, the input system—to the interacted application. This is because each module operates to correlate an interaction with the touch input system to the relevant application to which the touch corresponds.

252. *Koch* also specifically discloses various interactions with the interface of the second application, which also is “any of said applications.” Those interactions with the second application cause the focus of the system to be given to the second application. For example, as illustrated below, *Koch* depicts “gesture 5108,” “finger strokes 5128,” “finger strokes 5132,” and “[g]esture 5150” as interactions with the second application interface. *Koch*, ¶¶[0261]-[0262], [0266]-[0267], [0272]-[0275], [0380]-[0381], [0387]-[0389], [0394]-[0397]. In each instance, the interactions are recognized by the system and cause certain operations to be performed, which means that the interacted application receives the “focus of the system.” Notably, these interactions are similar to what the ’922

patent describes an application to “gain[] the focus of the input method” of the system. Ex. 1001, 85:56-65.



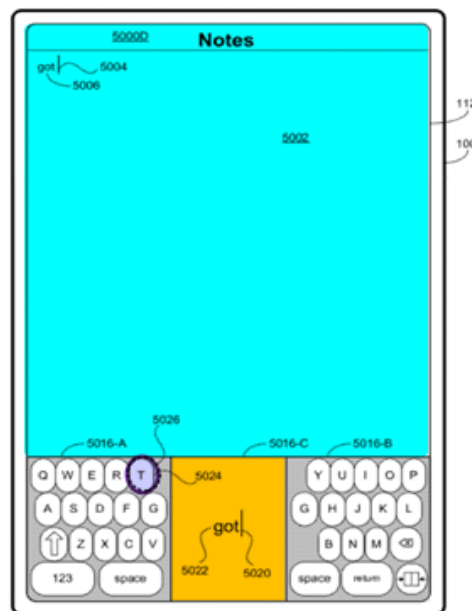
Koch, Figs. 5Z, 5FF, 5HH, 5NN (annotated excerpts)

253. For the reasons above, *Koch* also discloses every limitation of claim 2 and anticipates, or at least renders obvious, the claim.

3. Claim 3. The system of claim 1, wherein said keyboard is used with both of said applications.

254. *Koch* discloses or renders obvious the system of claim 1 as discussed above. *Koch* further discloses that said keyboard is used with both of said applications.

255. For example, in *Koch*, “[i]n response to detection of gesture 5026 on ‘T’ key 5024 [of the keyboard], ... a ‘t’ character is entered into input text 5006 [of the first application],” and “[d]uplicate input text 5022 in [second application] center area 5016-C also shows the ‘t’ character being entered.” *Koch*, ¶[0237], Fig. 5D (below). Thus, the keyboard is “used with” both applications, as required by claim 3.



Koch, Fig. 5D (annotated)

256. Additionally, as discussed in [1d], gestures on the keyboard are used to activate the center area. Similarly, a “keyboard unsplit key 5018” is used to unsplit the keyboard and hide the second application, and is thus “used with” the second application for this additional reason. *Koch*, ¶[0238].

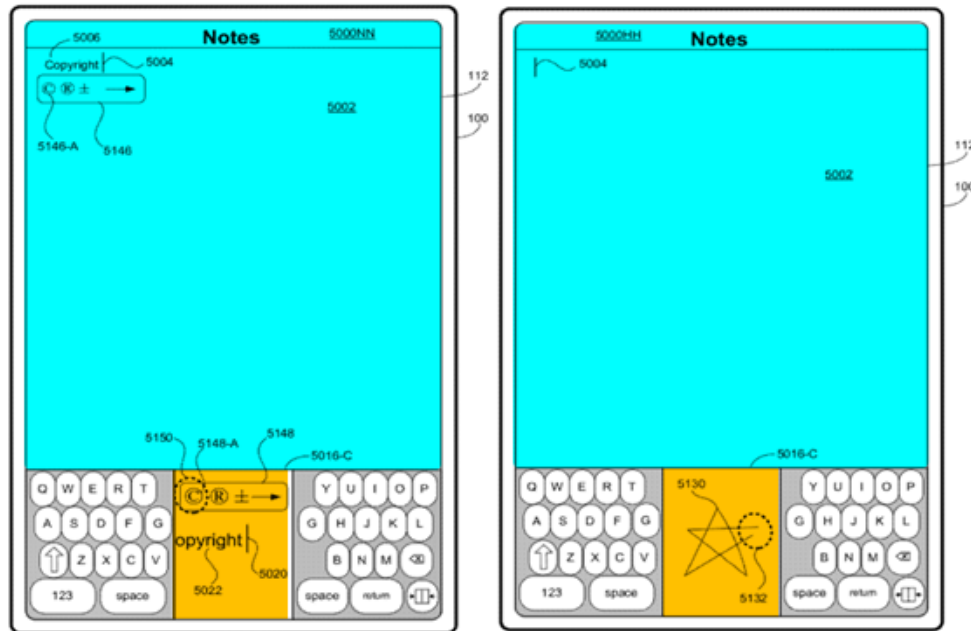
257. Thus, *Koch* also discloses every limitation of claim 3 and anticipates, or at least renders obvious, the claim.

4. **Claim 4. The system of claim 1, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.**

258. *Koch* discloses or renders obvious the system of claim 1 as discussed above. *Koch* further discloses that an information received from one of said

applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.

259. For example, *Koch* describes several implementations in which information—whether in the form of a character or a drawing image—is received by (or selected within) the center-area application and then shared with the other application. As illustrated in Figure 5NN (below-left), for example, Unicode text character “©” received as input into the **second application** is shared with the **first application** while both interfaces are displayed. *Koch*, ¶¶[0272]-[0273] (also describing embodiment where “Unicode characters available for input are just displayed in the center area”), [0394]-[0395]. As another example, a drawing image received as input into the **second application** (as illustrated in Figure 5HH (below-right)) is shared with the **first application** while both interfaces are displayed. *Koch*, ¶¶[0267], [0388]-[0389]; *see also Koch*, Fig. 5II (illustrating the drawing in the first application after it has been shared).



Koch, Figs. 5NN, 5HH (annotated)

260. Thus, *Koch* discloses every limitation of claim 4 and anticipates, or at least renders obvious, the claim.

5. Claim 5. The system of claim 4, wherein said information includes at least one of, a text, an image, a video, a webpage and a URL.

261. *Koch* discloses or renders obvious the system of claim 4 as discussed above. *Koch* further discloses that said information includes at least one of a text, an image, a video, a webpage, and a URL.

262. For example, as I discuss in connection with claim 4 above, “said information” shared from the second application to the first application may be Unicode text (which is “a text”) or a drawing (which is “an image”).

263. Thus, *Koch* also discloses every limitation of claim 5 and anticipates, or at least renders obvious, the claim.

6. Claim 7. The system of claim 1, wherein at least one of the applications is a messaging application.

264. *Koch* discloses or renders obvious the system of claim 1 as discussed above. *Koch* further discloses that at least one of the applications is a messaging application.

265. For example, *Koch* discloses that its electronic device “typically supports a variety of applications, such as ... an e-mail application[and] an instant messaging application.” *Koch*, ¶[0107]; see also *Koch*, ¶¶[0114] (device supports “protocol for e-mail,” “instant messaging,” “and/or Short Message Service (SMS), or any other suitable communication protocol”), [0158] (describing messaging capabilities). *Koch*’s text input module (including the keyboard) is used with “any ... application that needs text input” (*Koch*, ¶[0133]), which a POSITA would understand includes the messaging application. This is because a messaging application was known to communicate a text message (among other information, potentially) from one user to another and, therefore, needs text input.

266. Thus, *Koch* also discloses every limitation of claim 7 and anticipates, or at least renders obvious, the claim.

7. Claim 10. The system of claim 1, wherein at least one of the applications is used for sharing at least one of text, pictures, or videos.

267. *Koch* discloses or renders obvious the system of claim 1 as discussed above. *Koch* further discloses that at least one of the applications is used for sharing at least one of text, pictures, or videos.

268. For example, as I discuss above for claims 4 and 5, the second application is used for sharing text or images with the first application. As I also discuss above for claim 7, *Koch* discloses that its (first) application may be a messaging application, which also is “used for sharing ... text.” Accordingly, for the same reasons, *Koch* discloses claim 10.

269. Thus, *Koch* also discloses every limitation of claim 10 and anticipates, or at least renders obvious, the claim.

8. Claim 11. The system of claim 1, wherein said device is a mobile phone.

270. *Koch* discloses or renders obvious the system of claim 1 as discussed above. *Koch* further discloses that said device is a mobile phone.

271. For example, *Koch* discloses that its device “is a portable communications device, such as a mobile telephone.” *Koch*, ¶[0105].

272. Thus, *Koch* also discloses every limitation of claim 11 and anticipates, or at least renders obvious, the claim.

9. Independent Claim 12

a. [12pre] A method comprising:

273. To the extent the preamble is limiting, *Koch* discloses a method.

274. For example, *Koch* discloses a “Device, Method, and Graphical User Interface for Manipulating Soft Keyboards.” *Koch*, Title.

b. [12a] assigning a first zone of a touch screen to an interface of a first application;

275. *Koch* discloses assigning a first zone of a touchscreen to an interface of a first application.

276. For example, *Koch* discloses [12a] for the same reasons as it discloses [1c], because [1c] similarly recites “wherein a first zone of said touchscreen is assigned to an interface of said first application.” See Section XI.E.1.d.

c. [12b] assigning a second zone of said touch screen to an on-screen keyboard; and

277. *Koch* discloses assigning a second zone of said touchscreen to an on-screen keyboard.

278. For example, *Koch* discloses [12b] for the same reasons as it discloses [1c], because [1c] similarly recites “a second zone of said touchscreen is assigned to said keyboard.” See Section XI.E.1.d.

- d. [12c] based on accomplishment of a condition under the control of said keyboard, activating a second application and displaying an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone of said touch screen and**

279. *Koch* discloses or renders obvious, based on accomplishment of a condition under the control of said keyboard, activating a second application and displaying an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone of said touchscreen.

280. For example, *Koch* discloses or renders obvious [12c] for the same reasons as it discloses or renders obvious [1d], because [1d] similarly recites “wherein based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone.” See Section XI.E.1.e.

- e. [12d] wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touch screen.**

281. *Koch* discloses that said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.

282. For example, *Koch* discloses [12d] for the same reasons as it discloses [1e], because [1e] similarly recites “wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.” See Section 244.

283. For the reasons above, *Koch* discloses or renders obvious every limitation of independent claim 12 and anticipates, or at least renders obvious, the claim.

10. Claim 13. The method of claim 12, comprising using said keyboard with both of said applications.

284. *Koch* discloses or renders obvious the method of claim 12 as discussed above. *Koch* further discloses that the method comprises using said keyboard with both of said applications.

285. For example, *Koch* discloses the additional limitations of claim 13 for the same reasons as claim 3, because claim 3 similarly recites “wherein said keyboard is used with both of said applications.” See Section XI.E.3. Thus, *Koch* anticipates, or at least renders obvious, the claim.

11. Claim 14. The method of claim 12, wherein at least one of said applications is one of, a text messaging application and an image sharing application.

286. *Koch* discloses or renders obvious the method of claim 12 as discussed above. *Koch* further discloses that at least one of said applications is one of a text messaging application and an image sharing application.

287. For example, *Koch* discloses the additional limitations of claim 14 for the same reasons as claims 7 and 10, as well as claim 4. See Sections XI.E.4, XI.E.6-XI.E.7. As I discuss in connection with claim 7, *Koch* discloses that its device provides “SMS” (text messaging) as well as “any ... application that needs text input,” which both encompass text messaging applications. See Section XI.E.6; *Koch*, ¶¶[0114], [0133]. As I discuss in connection with claim 4, *Koch* discloses that its center area application shares a drawing (image) with another application and, thus, is an “image sharing application.” See Section XI.E.5; *Koch*, ¶¶[0267], [0388]-[0389], Figs. HH-II.

288. Thus, because *Koch* further provides “wherein at least one of said applications is one of[] a text messaging application and an image sharing application,” it anticipates, or at least renders obvious, the claim.

- 12. Claim 18. The method of claim 12, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touch screen.**

289. *Koch* discloses or renders obvious the method of claim 12 as discussed above. *Koch* further discloses that an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.

290. For example, *Koch* discloses the additional limitations of claim 18 for the same reasons as claim 4, because claim 4 similarly recites “wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.” See Section XI.E.4. Thus, *Koch* discloses, or at least renders obvious, every limitation of claim 18 and anticipates the claim.

- 13. Claim 19. The method of claim 18, wherein said information includes at least one of a text, an image, a video, a webpage and a URL.**

291. *Koch* discloses or renders obvious the method of claim 18 as discussed above. *Koch* further discloses that said information includes at least one of a text, an image, a video, a webpage, and a URL.

292. For example, *Koch* discloses the additional limitations of claim 19 for the same reasons as claim 5, because claim 5 similarly recites “wherein said information includes at least one of[] a text, an image, a video, a webpage[,] and a URL.” See Section XI.E.5. Thus, *Koch* discloses every limitation of claim 19 and anticipates, or at least renders obvious, the claim.

14. Claim 20. The method of claim 12, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

293. *Koch* discloses or renders obvious the method of claim 12 as discussed above. *Koch* further discloses that, upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

294. For example, *Koch* discloses the additional limitations of claim 20 for the same reasons as claim 2, because claim 2 similarly recites “wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.” See Section XI.E.2. Thus, *Koch* discloses every limitation of claim 20 and anticipates, or at least renders obvious, the claim.

15. Claim 21. The method of claim 12, wherein said touch screen is integrated within a mobile communication device.

295. *Koch* discloses or renders obvious the method of claim 12 as discussed above. *Koch* further discloses that said touchscreen is integrated within a mobile communication device.

296. For example, *Koch* discloses the additional limitations of claim 21 for the same reasons as claim 11, e.g., because a “mobile phone” (recited in claim 11) is a “mobile communication device” as recited in claim 21. See Section XI.E.8. Further, the touch screen is integrated within the mobile communication device as discussed in claim [1a]. See Section XI.E.1.b. Thus, *Koch* also discloses every limitation of claim 21 and anticipates, or at least renders obvious, the claim.

F. Ground 6: *Koch* in View of *Sirpal* (Claim 6)

297. It is my opinion that claim 6 would have been obvious over *Koch* in view of *Sirpal*.

1. Claim 6. The system of claim 4, wherein said information is copied from one of said applications and pasted in the other application.

298. *Koch* discloses or renders obvious the system of claim 4, as I discuss above in Section XI.E.4. Claim 6 further requires “said information [to be] copied from one of said applications and pasted in the other application.” *Sirpal* discloses that feature as discussed above in Section XI.B.2.

299. Even though *Sirpal* primarily concerns using a dual-screen mobile device, a POSITA would readily recognize that its solutions would be adaptable to a single-screen mobile device such as *Koch*. This is because *Sirpal* addresses several of the same art-recognized needs as *Koch*, which arise in the context of both single-screen and double-screen mobile devices. For example, both references address the need for a mobile device to be used with multiple applications as discussed below.

300. In *Sirpal*, for example, the device “can include at least one operating system (OS) 516, [an] application manager 562, a desktop 566, and/or one or more applications 564a and/or 564b from an application store 560.” *Sirpal*, ¶[0124]. “The OS 516 can be any software, consisting of programs and data, which manages computer hardware resources and provides common services for the execution of various applications 564.” *Sirpal*, ¶[0124]. “The applications 564 can be any higher level software that executes particular functionality for the user” and “can include programs such as email clients, web browsers, texting applications, games, media players, office suites, etc.” *Sirpal*, ¶[0125]. Similarly, *Koch* teaches that its “device typically supports a variety of applications,” including “a drawing application,” “a word processing application,” “a telephone application,” “an e-mail application, an instant messaging application,” and “a web browsing application.” *Koch*, ¶¶[0107], [0135]-[0153].

301. *Sirpal* and *Koch* also share similarities in their discussion of ways to share information from one application to another. *Koch* shares text and image information between applications as discussed above in connection with claims 4 and 5. *Koch* further provides copy/paste functionality, albeit without explicitly describing copying *from* one application *to* another. *Koch*, ¶¶[0261]-[0262], [0278], Figs. 5Z-5AA, 5TT. *Sirpal* discusses an additional way to share information, namely, through copy/paste functionality between applications. *Sirpal*, ¶¶[0160]-[0169]. As *Sirpal* explains, the ability to copy and paste between applications is common to both “single [and] dual-screen devices”:

Most single or dual-screen devices will allow a user to copy content from one location to another by first selecting an image or text, then accessing a copy/paste menu pop-up window, then selecting the copy command, at which point the device stores the information to a virtual clipboard. To paste the copied content, the user must navigate to the destination location (e.g., the application at which the content will be copied), select the area where the text should be placed, access a copy/paste menu pop-up window, and then select the paste command.

Sirpal, ¶[0168]. *Sirpal* suggests an improvement over other copy/paste functionalities by using a “universal clipboard” from which “a user can choose an item corresponding to already-copied content, and ... execute a paste command.”

Sirpal, ¶[0169]. According to *Sirpal*, its clipboard may be configured to store copied content from “a plurality of different applications (e.g., word-processing applications, email applications, web-browsing applications, spreadsheet applications, media player applications, data sharing applications, file-navigation applications, operating systems, etc.),” and including content “in the form of text content, hyperlinks (e.g., text representations of a URL or pointer), images, file path names, contact information, and/or video content (e.g., the image and/or audio portions thereof).” *Sirpal*, ¶[0162]. Additional information about *Sirpal*’s copy/paste functionalities appears in *Sirpal-000*, which *Sirpal* incorporates by reference. For example, *Sirpal-000* presents 30 pages describing “Copy & Paste Text, Links[,] and Universal Clipboard.” *Sirpal-000*, 152-82. *Sirpal-000* further notes that in “the current Android model,” users can “copy and paste” any number of items of information “from one app to another”—including “a text message,” “a URL,” and “text in a text field.” *Sirpal-000*, 153. In fact, *Sirpal* specifically describes providing copy/paste functionality to several of the exemplary applications identified by *Koch*, including “an e-mail application, an instant messaging application,” and “a web browsing application.” *Koch*, ¶¶[0107], [0135]-[0153]; see *Sirpal-000*, 158-64 (copying a link from a web page for pasting into an email message), 166-70 (copying text from a web page for pasting into an email), 172-75 (copying text and image from a web page for pasting into an email),

177-82 (copying text from an email application field to a text message application field).

302. Given the foregoing similarities between *Koch* and *Sirpal*, including their discussion of electronic mobile devices, implementing multiple applications thereon, and sharing information between such multiple applications, a POSITA would consider references such as *Sirpal* to be pertinent when implementing a system such as *Koch* with a mobile electronic device having applications. For example, the *Sirpal* reference provides additional details and options for how to share information between applications, a feature that *Koch* already provides.

303. For the foregoing reasons, a POSITA would have been motivated to combine the teachings of *Sirpal* with *Koch*, at least to provide *Sirpal*'s known technique for sharing information between applications—i.e., through copy/paste functionalities. A POSITA would be very familiar with the fact that known copy/paste techniques allow a user more refined control over the information being transferred. Specifically, a user can control *which* information to copy from one application and then choose later precisely *where* and *when* to paste the copied information into another application.

304. For example, in the combined system, a user would copy text or drawing information from *Koch*'s center area application, and then select a field in another application (potentially one of several fields or applications) to paste the

information—yielding “wherein said information is copied from one of said applications and pasted in the other application.” *Sirpal-000*, 171-75 (illustrating copy/paste from one application into the field of another). A user would have considered this feature to be advantageous in many situations. For example, a user may type text or draw a drawing into *Koch*’s center area application, because the center area application is within convenient reach of the keyboard. The user can capture that text or drawing using *Sirpal*’s copy function and then *later* choose a specific insertion point for the copied information to be entered within the first application.

305. Moreover, due to their similarities (paragraphs 299-302), a POSITA would have recognized that the similar device of *Koch* could be improved using the same copy/paste functionality of *Sirpal*, and a POSITA would have found the combination obvious. Further, to a POSITA, the process of combining *Sirpal*’s copy/paste method with *Koch* would have represented nothing more than applying a known technique to address a known problem (e.g., selectively transferring information from one application to another) using prior-art techniques of *Sirpal* according to their established functions.

306. Furthermore, a POSITA would have had a reasonable expectation of success in combining the references. In my opinion, combining the teachings of *Koch* and *Sirpal* would have required no more than ordinary skill because the

combination would have been a simple modification of existing components (GUI interface for mobile electronic device applications, use of copy/paste functionalities) in a straightforward manner to achieve predictable results.

Furthermore, a POSITA would have had a reasonable expectation of success in combining the teachings of *Koch* and *Sirpal* for several reasons. For example, the references have several overall similarities—e.g., both references relate to user interfaces for touchscreen mobile devices. *See* paragraphs 98 and 99 above.

Additionally, the *Koch* and *Sirpal* references include overlapping functionalities, including the implementation of multiple applications on a touchscreen mobile device (as discussed above in paragraphs 299-302). Further, a POSITA would have found it relatively easy to integrate *Sirpal*'s focus-switching techniques into *Koch*'s system (e.g., because *Sirpal* describes using the techniques on a common mobile operating system (Android OS) and a POSITA would understand to make similar changes to *Koch*'s operating system to implement *Sirpal*). *See Sirpal-000*, 153 (discussing “current Android model” being improved by *Sirpal*).

307. Thus, *Koch* in view of *Sirpal* renders claim 6 obvious.

G. Ground 7: *Koch* in View of *Matthews* (Claims 8, 9, and 15-17)

308. It is my opinion that claims 8, 9, and 15-17 would have been obvious over *Koch* in view of *Matthews*.

1. **Claim 8. The system of claim 1, wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application.**

309. As discussed in Section XI.E.1, *Koch* discloses or renders obvious the system of claim 1. Claim 8 further requires “wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application.” *Matthews* discloses these additional limitations.

310. As a starting point, *Koch*’s computer device includes a “search module 151” that “includes executable instructions to search for text, music, sound, image, video, and/or other files in memory 102 that match one or more search criteria (e.g., one or more user-specified search terms) in accordance with user instructions.” *Koch*, ¶[0166]. *Koch* does not describe an interface for launching and/or using its search functionality; however, such interfaces were well known as evidenced, for example, by *Matthews*.

311. In particular, *Matthews* describes “methods and [a] system for a search box and search capabilities in a graphical user interface of a program launch menu for an operating system.” *Matthews*, 1:15-18. In *Matthews*, a “user can type text into search box 327,” illustrated in Figure 3 below, “to search for Start menu items” as well as “perform a character by character search across the programs,

user files, Internet links, and communications on his or her system.” *Matthews*, 16:52-62.

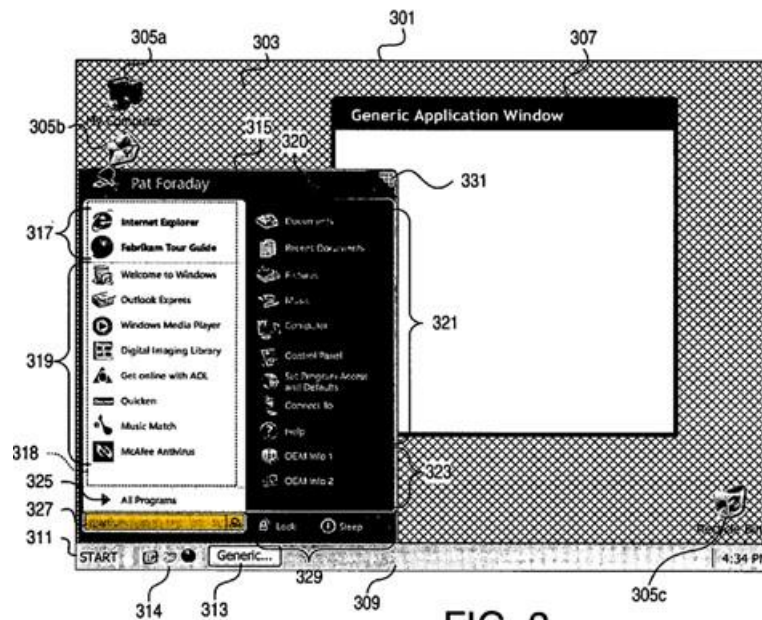


FIG. 3

Matthews, Fig. 3 (annotated)

312. *Matthews* further describes that the Start menu search box may be launched by pressing a keyboard key, i.e., “when the user presses the <Windows> key (not shown), the operating system displays the Start menu, and the search box 327 has input focus by default” so “[t]he user can immediately start typing text for which he or she would like to search for an item.” *Matthews*, 19:31-39. Thus, *Matthews* teaches the use of a “search application activated by interacting with a button of said keyboard assigned to activating said search application,” just as recited by claim 8.

313. A POSITA implementing the system of *Koch*—and particularly *Koch*’s “search module”—would have considered references such as *Matthews* to be pertinent for their disclosure of efficient search interfaces. For example, *Matthews* teaches that a user may quickly use the equivalent of “keyboard shortcuts” to access desired results “without being required to previously manually link or set up a keyboard shortcut as corresponding to a specific file.” *Matthews*, 19:42-51. A POSITA would recognize *Matthews*’s functionality to be applicable to *Koch* and advantageous for several reasons, including that it would provide *Koch* with an art-recognized, efficient way to launch a search application, as well as an art-recognized, efficient way to begin entering search terms into a search application.

314. A POSITA also would have recognized functional similarities between the keyboard split button, which *Koch* uses to launch the “center area” second application, and *Matthews*’s <Windows> button, which is used to “display[] the Start menu, and the search box 327” for immediate searching after the search application is activated. A POSITA thus would have found it obvious to modify *Koch*’s keyboard split button to provide the search functionality of *Matthews*’s <Windows> button, and display *Matthews*’s search box (327) in place of *Koch*’s “center area.” A POSITA would recognize that the foregoing combination of *Koch* and *Matthews* would yield a system in which *Koch*’s center

area application would be a “search application,” as claimed. Moreover, the combination yields “a search application activated by interacting with a button of said keyboard assigned to activating said search application,” because *Koch*’s center-area application (which, as modified, is a “search application”) is activated using keyboard buttons or gestures, as discussed in connection with claim [1d].

315. A POSITA would have reasonably expected to succeed in making the combination because combining the teachings of *Koch* and *Matthews* would have required no more than ordinary skill. This is because the combination would have been a simple substitution of one GUI (for a search function) in place of another GUI (for, e.g., drawing and text entry) in a straightforward manner to achieve predictable results, e.g., to include a search box in a convenient location near the keyboard. Furthermore, combining *Koch* with *Matthews* would have had a reasonable expectation of success for several reasons. For example, the references have several overall similarities—e.g., both references relate to computer interfaces, search functionalities, and using keyboard keys to launch applications. See paragraphs 310-314 above. Additionally, the *Koch* and *Matthews* references include overlapping functionalities, including search functionalities and the ability to launch applications from the keyboard. *Id.* Further, a POSITA would have found it relatively easy to integrate *Matthews*’s search functionalities into *Koch*’s system. After all, *Koch* already discloses “search.” Thus, using a search button and search

box as a way to implement *Koch*'s existing search could be implemented using software changes to existing software, along with GUI changes that, as evidenced by *Vincent*, also were already known.

316. For the foregoing reasons, the combination of *Koch* in view of *Matthews* yields "wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application." Accordingly, claim 8 is obvious.

2. Claim 9. The system of claim 8, wherein said search application use at least one keyword typed through said keyboard.

317. As I discuss above, *Koch* in view of *Matthews* renders obvious the system of claim 8. Claim 9 further requires "wherein said search application use[s] at least one keyword typed through said keyboard." *Matthews* provides that additional feature; therefore, the combination also renders claim 9 obvious, in my opinion.

318. As one example, *Matthews* describes a "search for <foo>" in which "the computer system 100 may initiate a broader search for the user-entered text, e.g., by launching a full-text search or full-text search window," where "the user may be able to search the computer for <foo>, search the Internet for <foo>, and/or search some other computer or database for <foo>, regardless of where the text <foo> appears." *Matthews*, 19:2-8. *Matthews* further teaches that the system "may

display any items first where the item's name begins with text matching the user-entered text, second where the item has a word other than its starting word that starts with text matching the user-entered text, and third where the item has any text matching the user-entered text." *Matthews*, 18:24-28. This ability to enter text and receive relevant results encompasses "keyword search," wherein "said search application use[s] at least one keyword typed through said keyboard." For example, as discussed above, a search for the keyword "foo" would return search results. *Matthews*, 18:24-28, 19:2-8.

319. Thus, the obvious combination of *Koch* and *Matthews* further yields "wherein said search application use[s] at least one keyword typed through said keyboard," and claim 9 is obvious.

3. Claim 15. The method of claim 12, wherein said interface of said second application is displayed on the touch screen by using a search application activated by providing a predefined interaction with a button of said keyboard that is related to activating said search application.

320. *Koch* discloses or renders obvious the method of claim 12, as I discuss above in Section XI.E.9. *Matthews* discloses the further limitations of claim 15 and, in combination with *Koch*, renders claim 15 obvious for at least the same reasons as claim 8. See Section XI.G.1.

321. In particular, as discussed in section XI.G.1, in the combination of *Koch* with *Matthews*, it would be obvious to implement the center area application

as a “search application.” Furthermore, *Koch* teaches that the center area application is activated via a button—keyboard split key—as discussed in connection with claim [1d]. Thus, the combination yields the “interface of said second application is displayed on the touch screen by using a search application activated by providing a predefined interaction with a button of said keyboard that is related to activating said search application,” as recited in claim 15.

4. Claim 16. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard.

322. As I discuss above, *Koch* in view of *Matthews* renders obvious the method of claim 15. *Matthews* further discloses the additional limitations of claim 16 for the same reasons as claim 9 and, thus, claim 16 is obvious. See Section XI.G.2.

5. Claim 17. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard after said search application is activated.

323. It is my opinion that claim 17 would have been obvious over *Koch* in view of *Matthews*. As discussed in Section XI.G.3, *Koch* in view of *Matthews* renders obvious the method of claim 15. *Matthews* further discloses the additional limitations of claim 17 for the same reasons as claim 16. See Section XI.G.4. Claim 17 further requires that the keyword be typed “after said search application is activated,” which *Matthews* also provides.

324. In the obvious combination of *Matthews* and *Koch*, *Koch*'s center area application is a "search application" that is activated by pressing the keyboard split key, as discussed in connection with claim 8. And because *Matthews* teaches to type keywords *after* the <Windows> key has been pressed to initiate the search functionality, the combination further renders obvious typing the keyword "after said search application is activated." *Matthews*, 18:31-39 (after pressing the <Windows> key, "[t]he user can immediately start typing text for which he or she would like to search for an item").

325. Thus, *Koch* in view of *Matthews* renders claim 6 obvious.

XII. CONCLUSION

326. For the reasons set forth in Section XI, it is my opinion that one skilled in the art would have found claims 1-21 of the '922 patent anticipated and/or obvious.

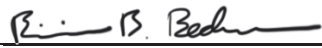
327. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

328. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Declaration of Dr. Benjamin B. Bederson, Ph.D.

Respectfully submitted,

Dated: February 13, 2025

/ / 
Benjamin B. Bederson, Ph.D.

CLAIMS APPENDIX

1. **[1pre]** A system for using multiple applications on a screen of a device, comprising:
 - [1a]** an electronic device having a touchscreen;
 - [1b]** an on-screen keyboard for entering text in a first application running within said device
 - [1c]** wherein a first zone of said touchscreen is assigned to an interface of said first application and a second zone of said touchscreen is assigned to said keyboard; and
 - [1d]** wherein based on accomplishment of a condition under the control of said keyboard, the system activates a second application and displays an interface of the second application and a reduced interface corresponding to said keyboard on at least a portion of said second zone, and
 - [1e]** wherein said interface of said first application, said interface of said second application, and the reduced interface corresponding to said keyboard are simultaneously displayed on said touchscreen.
2. The system of claim 1, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.

3. The system of claim 1, wherein said keyboard is used with both of said applications.
4. The system of claim 1, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touchscreen.
5. The system of claim 4, wherein said information includes at least one of, a text, an image, a video, a webpage and a URL.
6. The system of claim 4, wherein said information is copied from one of said applications and pasted in the other application.
7. The system of claim 1, wherein at least one of the applications is a messaging application.
8. The system of claim 1, wherein said second application is a search application activated by interacting with a button of said keyboard assigned to activating said search application.
9. The system of claim 8, wherein said search application use at least one keyword typed through said keyboard.
10. The system of claim 1, wherein at least one of the applications is used for sharing at least one of text, pictures, or videos.

11. The system of claim 1, wherein said device is a mobile phone.
12. A method comprising:
 - [12a] assigning a first zone of a touch screen to an interface of a first application;
 - [12b] assigning a second zone of said touch screen to an on-screen keyboard; and
 - [12c] based on accomplishment of a condition under the control of said keyboard, activating a second application and displaying an interface of the second application and a reduced Interface corresponding to said keyboard on at least a portion of said second zone of said touch screen and
 - [12d] wherein said interface of said first application, said interface of said second application, and the reduced Interface corresponding to said keyboard are simultaneously displayed on said touch screen.
13. The method of claim 12, comprising using said keyboard with both of said applications.
14. The method of claim 12, wherein at least one of said applications is one of, a text messaging application and an image sharing application.
15. The method of claim 12, wherein said interface of said second application is displayed on the touch screen by using a search application activated by

providing a predefined interaction with a button of said keyboard that is related to activating said search application.

16. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard.
17. The method of claim 15, wherein said search application use at least one keyword typed through said keyboard after said search application is activated.
18. The method of claim 12, wherein an information received from one of said applications is shared with at least the other application while said interface of said first application and said interface of said second application are simultaneously displayed on said touch screen.
19. The method of claim 18, wherein said information includes at least one of a text, an image, a video, a webpage and a URL.
20. The method of claim 12, wherein upon interacting with the interface of any of said applications, the focus of the system is given to the interacted application.
21. The method of claim 12, wherein said touch screen is integrated within a mobile communication device.