

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC and MOTOROLA MOBILITY LLC,
Petitioner,

v.

MULTIFOLD INTERNATIONAL INCORPORATED PTE. LTD.
Patent Owner

Case No. IPR2025-00058
U.S. Patent No. 9,158,494

DECLARATION OF ED BECZE, PhD

I, Charles (Ed) Becze, declare as follows:

I. INTRODUCTION

1. My name is Ed Becze. I am a Managing Partner and Cofounder of Pegmatis Inc., a world leader in product design and development. I submit this declaration to testify to my personal knowledge and involvement on the Imerj dual screen folding smartphone project, first at Flextronics (now Flex) from June 2008 through February 2010 and then at Imerj Design (a division of Flextronics) from February 2010 through November 2011. I have no financial interest in the outcome of this proceeding, in U.S. Pat. No. 9,158,494 (the “’494 Patent”), or in the outcome of any proceeding involving the ’494 Patent.

2. The Imerj smartphone project had various names such as “Imerj” and “Conquest” during development, but I will generally refer to it in this declaration by “Imerj,” which is the name the phone was ultimately marketed under, as well as the name of the Flextronics subsidiary (Imerj Design) later created to market it.

3. An example of an Imerj dual screen folding smartphone is shown below:



4. I served as the Director of Product Design at Flextronics on the Imerj project, where I managed analytical and detail design groups delivering a two screen smart phone to launch. Later, when the Imerj Design company was formed, I transitioned to Director of Mechanical Platform Engineering with essentially the same responsibilities. In this capacity, I led development of the Imerj phone hardware, including sourcing, logistics, assembly, quality, reliability, and tooling development. That is, I was responsible for development of the physical hardware for the Imerj smartphone.

II. THE IMERJ PROJECT

5. The Imerj project lasted approximately from 2009 through 2012. During the 2010-2011 timeframe, at least 100 people were working full time to develop and test the Imerj smartphone. I personally directly and indirectly managed a team of approximately 10 to 15 people both contract and Flex employees working full time on developing the hardware for the Imerj project during the late 2010 through early 2011 timeframe. We also had a Quality Assurance team that was constantly testing the prototypes over the entire course of the project.

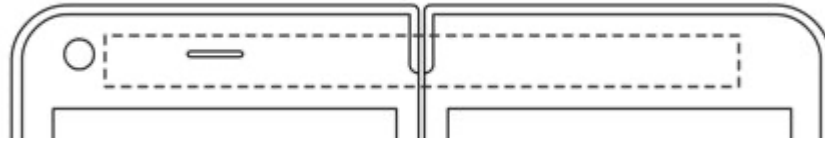
6. The gesture functionality implemented in the Imerj smartphone was defined by Sanjiv Sirpal, who led the user experience team for the Imerj project. The user experience team was responsible for defining how the displays should behave and what functions would be performed by particular gestures. Sanjiv was responsible for coming up with the concept of minimizing and maximizing apps in dual portrait mode. Sanjiv provided the specifications for the gesture functionality and helped ensure that the smartphone met the specified gesture functionality. My team and I developed hardware prototypes based on the designs provided by Sanjiv. I was not involved in the software development for the Imerj project. From the beginning, I was confident we could develop a device that would work for its intended purpose based on the specifications provided by

Sanjiv.

7. I have reviewed Exhibit 2006 [UXOverview]. This document is titled “UX Foundation Overview” and was authored by Sanjiv Sirpal. It is dated November 18, 2010. This document is a PowerPoint presentation specifying certain functionality relevant to the user experience on the Imerj smartphones. This document demonstrates some of the requirements work Sanjiv was doing.

8. The presentation describes basic functionality of the Imerj dual screen phone, including with respect to gesture operations such as minimizing and maximizing apps in dual portrait mode on the Imerj smartphone and moving applications between windows. This document confirms my recollection that Sanjiv came up with the idea for the gesture functionality at issue here—including dual screen applications with parent/child relationships, and minimization and maximization functionality,—no later than November 18, 2010. My recollection is that Sanjiv’s idea for each of these functions was conceived significantly earlier than the date on the document.

9. For example, the presentation discusses that the dual screen handset includes a gesture strip across the top of the device shown by the dashed box in the figure below. *Id.*, 30, 31. This strip can be used for gesture input by a user to navigate through applications running on the device.



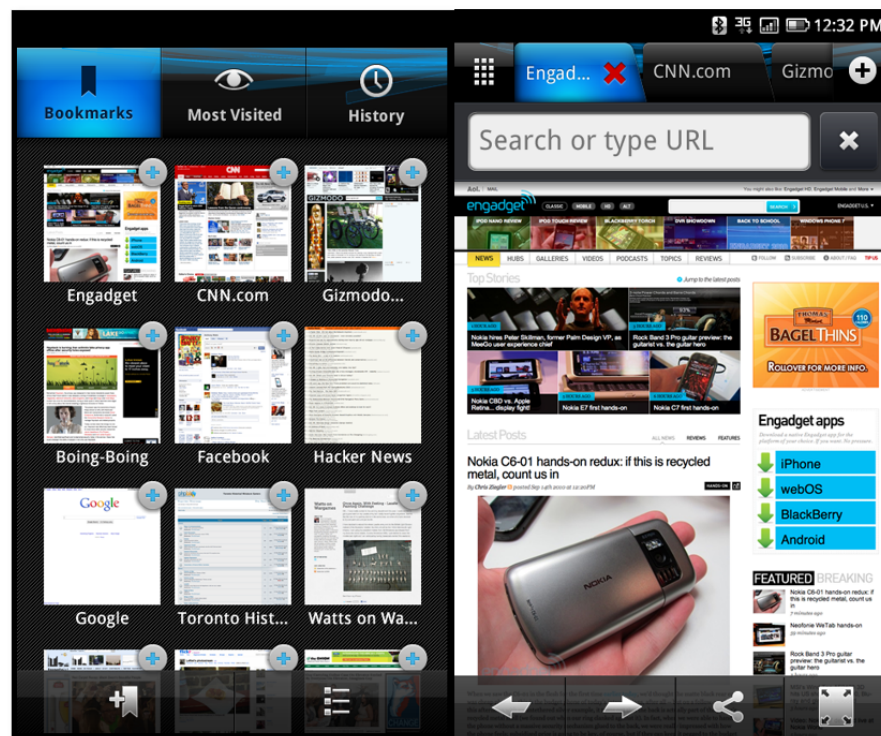
Id. at 30.

10. The presentation describes that the Gesture Strip “tracks the gestures that are used to “Move,” “Maximize,” and “Minimize.” *Id.*, 30. The presentation explains that the Gesture Strip “[p]rovides the ability to navigate through the applications running on the handset.” *Id.*

11. The slide deck explains that “[w]hen new applications are launched, they insert themselves into the screen they were launched from. The previous application is not replaced, merely pushed out of view.” *Id.*, 31. The slide deck also describes “[d]ual screen capable applications” that “will first maximize, and then minimize.” *Id.*, 31.

12. Examples of such dual screen capable applications are provided including a dual screen capable (or “Portrait Dual Screen” capable) internet browsing application:

Portrait Dual Screen



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Id., 79. The example above shows the internet browser in dual screen mode, with a parent page showing browser content and the child page showing bookmarks for the browser. This document confirms my recollection that Sanjiv came up with the concept of minimizing and maximizing apps in dual portrait mode on the Imerj smartphone, as well as moving applications between windows.

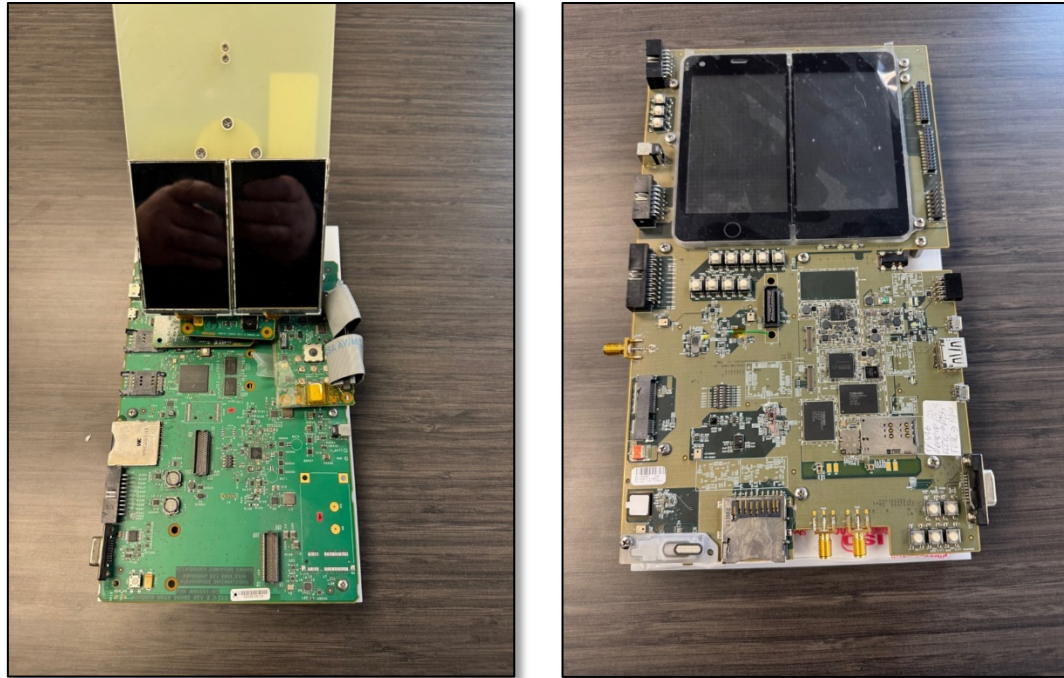
13. During early 2010 through summer 2010, I was devoted to

designing prototypes that eventually became the Imerj dual screen folding smartphone. Initially, in late 2009 and early 2010, we built what we referred to as “dev kits” (or development kits) that we could use to run the Imerj software being developed and demonstrate its functionality. The early dev kits used a single screen with software that imitated dual screens wired to a bread board with early versions of the other system components. A true and correct copy of a photo I took of an early Imerj dev kit (used late 2009 into early 2010) is shown below:



Exhibit 2014.

14. Later versions of the dev kits (around summer 2010) used two separate screens wired to a bread board. True and correct copies of photos I took of two of the dual screen Imerj dev kits is shown below:



Exhibits 2015 and 2016. These were used from early 2010 and into the fall of 2010.

15. We were able to demonstrate the basic software functionality on the dev kits, including touch input and swiping/gesture functionality. Because of this, the software was generally further ahead in terms of functionality and reliability than the hardware when we began manufacturing prototypes of the Imerj smartphones.

16. In October and November 2010, we had assembled the first batch of functional Imerj smartphone prototypes manufactured in Linköping, Sweden. These prototypes were referred to as “EV-1” prototypes. “EV” stands for “Engineering Verification.” Exhibit 2010 [Imerj Overview], 27. The purpose of EV-1 was to develop a hardware prototype that meets basic design goals and performs its core functionality to support software requirements. *Id.*, 28. We manufactured approximately 50 EV-1 prototypes of various configurations. In total, I recall about 20-26 fully functional EV-1 units were delivered to the software team for testing and further development that I was not involved in, with the balance used for various mechanical destructive testing.

17. The functional units provided to the software team had the android software flashed, and we had test software to validate the displays prior to assembly and post assembly with the base operating system.

18. A true and correct photo I took of an EV-1 Imerj smartphone from fall 2010 is shown below.



Exhibit 2017. All EV-1 units were sealed with tape to allow for easy and anticipated repair of the displays. Some of the EV units (including the one shown above) still have the original tape from the last repair.

19. I recall that EV-1 prototypes were manufactured during October and November 2010 in part because I personally travelled to Linköping during this time to assist in the manufacture of the EV-1 prototypes. A copy of my travel ticket from Flextronics showing my flight to Linköping from October 12-21, 2010 is attached as Exhibit 2019 in this proceeding.

20. The relevant gesture input functionality on the EV-1 prototypes with the Android OS (e.g., minimizing and maximizing apps in dual portrait mode) was functional as well as on all subsequent builds. I remember using the

EV-1 device and that the touch was fully calibrated and the dual portrait mode functionality was present. The main issues remaining with the EV-1 prototypes had to do with hardware reliability and durability. In general, the software build was further ahead than the hardware and was fairly robust at this point.

21. In January 2011, the Imerj project moved on to EV-2. A third batch of Imerj prototypes was manufactured in Linköping in January 2011. Approximately 50 EV-2 prototypes were manufactured.

22. The EV-2 prototypes maintained the existing touch input concept functionality of the EV-1 prototypes. EV-2 units included a form factor change from EV-1 to improve various hardware features of the device such as acoustic performance, and antenna tuning/sensitivity. There was no functional difference between EV1 and subsequent EV builds from a software perspective, only improvements in durability, reliability, cosmetics, and user experience such as button feel and paint colour and finish. A true and correct copy of a photo I took of an EV-2 smartphone from January 2011 is shown below. The gesture bar runs along the top of the displays:



Exhibit 2018.

23. I recall that EV-2 prototypes were manufactured in January 2011 in part because I traveled to Linköping in December 2010 and January 2011 to oversee their manufacture. I recall a December 2010 trip because I recall coming home from Linköping and immediately turning around and leaving my house for a Christmas vacation in Florida at my wife's insistence. Exhibit 2020 in this proceeding is a copy of my invoice for a flight to Linköping from January 3 through January 20, 2011. January 2011 was the last time I would travel to Linköping as future Imerj smartphones were manufactured at other facilities.

24. During the time period from October 2010 through February 2011,

my team and I spent substantially all of our time at work testing and improving on the EV-1 and EV-2 prototypes.

25. The relevant gesture functionality on the EV-2 prototypes (e.g., minimizing and maximizing apps in dual portrait mode on the Imerj smartphone) was functional.

26. After EV-2, full time work continued on the Imerj project over the spring and summer of 2011 with significant improvements in durability and reliability of the devices. Exhibit 2010 [Imerj Overview], 29. Manufacturing techniques were the primary focus of subsequent builds to develop reliable processes to make components and assemble the device. By the fall of 2011, the Imerj dual screen folding smartphones were fully production ready. The Production Validation (PV) units were reliable devices that met durability requirements and were ready to compete in the emerging smartphone market. *Id.*

III. FUNCTIONALITY OF THE IMERJ DUAL SCREEN FOLDING SMARTPHONE PROTOTYPES

27. As discussed above, the gesture bar and gesture functionality were implemented on both EV-1 and subsequent prototypes.

28. I understand Exhibit 2007 in this proceeding is a PowerPoint slide deck titled “Tiger Teams UX Polish.” I have reviewed this document. It is dated February 18, 2011. The document appears to disclose several teams dedicated

to testing daily EV-2 builds. *Id.*, 5.

29. The first page states “Tiger Teams UX Polish.” *Id.*, 1. UX refers to the user experience. *Id.*, 2. “Polish” refers to refining the functionality of the product. Polishing is done when product development is fairly mature and the product has been tested sufficiently to establish it works for its intended purpose. Polishing is done, for example, for purposes of debugging, fixing minor issues and making sure operation by the user is smooth and reliable. This corroborates my recollection that at the EV-2 stage, the gesture functionality of the Imerj phone was already functional and that the EV2-prototypes had been tested sufficiently to establish they worked for their intended purpose, including minimizing and maximizing between portrait dual display and portrait single display.

30. I understand Exhibit 2008 in this proceeding is a PowerPoint slide deck titled Feb22_TigerTeamToronto. I have reviewed this document. It shows testing taking place on the Imerj phones during late January 2011 and into February 2011. It refers to some of the same testing teams discussed at pages 3 and 4 of Exhibit 2007 [Tiger Team UX Polish]—for example, “Rotation & Orientation” and “WPC.” Thus, the document shows testing done on EV-2 prototypes to polish the user experience.

31. Page 4 of Exhibit 2008 [Feb22_TigerTeamToronto] is titled “WPC - Top Ten.” “WPC” was the Imerj Window Position Controls group that dealt with gesture and motion control. The summaries of the issues indicate they are refinements to existing functionality and corner cases. For example, “WPC gestures on capacitive strip still work in lock screen for dual screen applications” and “WPC Maximization and Scrolling graphics performance is very choppy on K35” indicate that gesture and maximization functionality already existed but needed refinement in certain cases, such as the lock screen. This is consistent with my recollection that the dual portrait mode maximization and minimization was implemented in both EV-1 and EV-2 prototypes.

IV. CONCLUSION

32. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested proceeding before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the proceeding 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.

33. I reserve the right to supplement my testimony in the future to

account for new information as it becomes available to me.

34. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further 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.

Executed on this 27th day of February, 2025, in Oakville, Ontario.



Ed Becze