

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ACCESSIBE LTD.,
Petitioner,

v.

AUDIOEYE, INC.,
Patent Owner.

IPR2022-00148
Patent 10,809,877 B1

Before LYNNE E. PETTIGREW, STACEY G. WHITE, and
JON M. JURGOVAN, *Administrative Patent Judges*.

PETTIGREW, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner, accessiBe Ltd., filed a Petition for *inter partes* review of claims 1–21 of U.S. Patent No. 10,809,877 B1 (Ex. 1001, “the ’877 patent”). Paper 2 (“Pet.”). Patent Owner, AudioEye, Inc., filed a Preliminary Response. Paper 10 (“Prelim. Resp.”).

Under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), we have authority to institute an *inter partes* review if “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). After considering the parties’ arguments and the evidence of record, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of the challenged claims of the ’877 patent. Accordingly, we institute an *inter partes* review of claims 1–21 of the ’877 patent on the grounds asserted in the Petition.

II. BACKGROUND

A. Real Parties-in-Interest

Petitioner identifies itself as the real party-in-interest. Pet. 1. Patent Owner identifies itself as the real party-in-interest. Paper 4, 1 (Patent Owner’s Mandatory Notices).

B. Related Matters

In their initial mandatory notices, the parties identify the following district court proceeding involving the ’877 patent: *AudioEye, Inc. v. accessiBe Ltd.*, No. 6:20-cv-00997 (W.D. Tex.) (“Texas proceeding”). Pet. 1; Paper 4, 1. On March 23, 2022, Petitioner updated its mandatory notices to inform us that on March 9, 2022, the district court case was transferred from the Western District of Texas to the Western District of

New York and is now captioned *AudioEye, Inc. v. accessiBe Ltd.*, No. 6-22-cv-06116 (W.D.N.Y.) (“New York proceeding”). Paper 11, 2.

Petitioner identifies as related matters the following pending *inter partes* review and petitions for *inter partes* review involving patents related to the ’877 patent:

- *accessiBe Ltd. v. AudioEye, Inc.*, No. IPR2021-00797 (U.S. Patent No. 10,444,934) (instituted Nov. 8, 2021)
- *accessiBe Ltd. v. AudioEye, Inc.*, No. IPR2022-00214 (U.S. Patent No. 10,845,946)
- *accessiBe Ltd. v. AudioEye, Inc.*, No. IPR2022-00220 (U.S. Patent No. 10,845,947)
- *accessiBe Ltd. v. AudioEye, Inc.*, No. IPR2022-00226 (U.S. Patent No. 10,866,691)
- *accessiBe Ltd. v. AudioEye, Inc.*, No. IPR2022-00227 (U.S. Patent No. 10,860,173)

Paper 11, 2–4. The related patents are also at issue in the New York proceeding. *Id.*

C. Overview of the ’877 Patent

The ’877 patent is titled “Modular Systems and Methods for Selectively Enabling Cloud-Based Assistive Technologies.” Ex. 1001, code (54). The ’877 patent describes systems and methods for bringing a website into compliance with accessibility standards by scanning the website, identifying compliance issues, and remediating the website by injecting code into the HyperText Markup Language (“HTML”) document object model (“DOM”) of the website. *Id.* at code (57), 2:37–3:14. “The HTML DOM is a standard object model and programming interface for

HTML,” i.e., “a standard for how to get, change, add, delete, or otherwise interact with HTML elements.” *Id.* at 4:46–51.

Figure 5 of the ’877 patent is reproduced below:

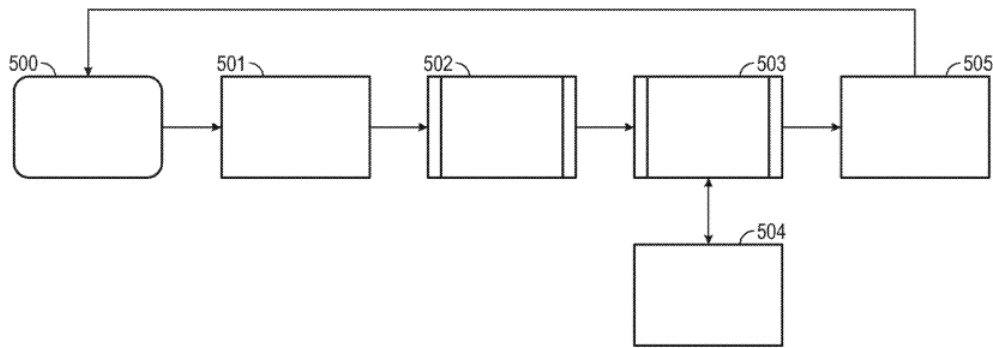


FIG. 5

Figure 5 above illustrates a remediation delivery process. *Id.* at 9:15–16. At step 500, an AudioEye, Inc. (“AE”) JavaScript loads. *Id.* at 9:16–17. As described in the ’877 patent, AE JavaScript may be used to address and manipulate objects in the DOM tree. *Id.* at 4:52–57. At step 501, manual remediations present in the configuration are applied and executed. *Id.* at 9:17–18. At step 502, a process runs to scan the page to detect compliance issues. *Id.* at 9:18–19. At steps 503 and 504, a heuristic engine maps the detected compliance issues to pre-existing remediation scripts. *Id.* at 9:19–21. At step 505, a process programmatically executes or applies each matched remediation. *Id.* at 9:21–23.

Figure 6 of the '877 patent is reproduced below:

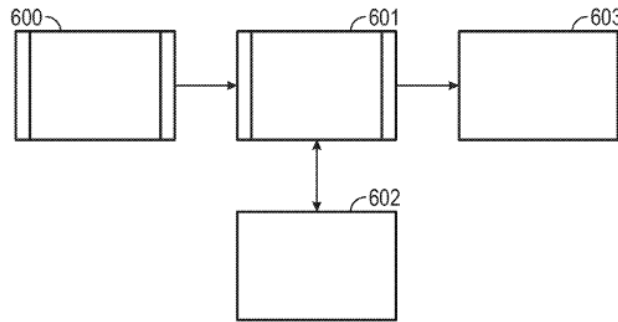


FIG. 6

Figure 6 above illustrates smart text lookup process 600. *Id.* at 9:66–67. Process 600 is configured to search the DOM for commonly occurring elements that do not have text descriptions or that have ambiguous text descriptions. *Id.* at 9:67–10:4. Element classification process 601 employs heuristic engine 602 to identify relevant attributes to empower process 603 to apply text description tags to the untagged or improperly tagged element. *Id.* at 10:4–8.

The '877 patent describes a feature that involves “auto-remediation of manually fillable form fields,” i.e., input fields. *Id.* at 10:37–38. To remediate input fields, the '877 patent explains that the “AE JavaScript may be configured to programmatically inspect nearby text elements and infer and inject an appropriate label based on contextual cues such as the words ‘name,’ ‘first,’ and ‘last’ as well as relative positions and types of attributes, i.e., a SPAN tag in front of an INPUT field.” *Id.* at 10:45–50.

D. Illustrative Claim

Challenged claims 1 and 10 are independent, claims 2–9 depend directly from claim 1, and claims 11–21 depend directly from claim 10. Claim 1 is illustrative of the claimed subject matter and is reproduced below:

1[pre]. A computer-implemented method of programmatically assigning a descriptive attribute to an element on a web page to enable an audible description of the element, the web page having an associated document object model (DOM), the method comprising:

1[a] accessing, by a computer system, a code associated with the web page, the code comprising at least HTML or the DOM;

1[b] detecting, by the computer system, one or more compliance issues relating to web accessibility standards in the code, wherein at least one of the one or more compliance issues comprises an input field lacking an adequate descriptive attribute; and

1[c] mapping the one or more compliance issues to one or more pre-existing remediation code, wherein the one or more pre-existing remediation code comprise at least:

1[d] determining, by the computer system, one or more contextual cues associated with the input field;

1[e] obtaining, by the computer system, a descriptive attribute based on applying an artificial intelligence algorithm, wherein the artificial intelligence algorithm dynamically generates the descriptive attribute based on the one or more contextual cues; and

1[f] assigning, by the computer system, the descriptive attribute to the input field, the descriptive attribute assigned to the input field adapted to enable an assistive technology to speak the descriptive attribute to a user.

Ex. 1001, 18:57–19:17 (annotated to include Petitioner’s identification of limitations).

E. Asserted Grounds of Unpatentability

Petitioner asserts that the challenged claims are unpatentable based on the following grounds (Pet. 3–4):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–21	103	Springer, ¹ Nguyen, ² Hendry ³
1–21	103	Lehota, ⁴ Nguyen, Hendry

Petitioner relies on the declaration of James Fogarty, Ph.D., in support of its contentions. *See* Ex. 1002.

III. ANALYSIS

A. Discretion under 35 U.S.C. § 314(a)

The advanced state of a parallel district court action is a factor that may weigh in favor of denying institution of an *inter partes* review under § 314(a). *See NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential); Patent Trial and Appeal Board, Consolidated Trial Practice Guide (“CTPG”), 58 & n.2 (Nov. 2019), available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>. We consider the following factors to assess “whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding”:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;

¹ U.S. Patent App. Pub. 2004/0148568 A1 (pub. July 29, 2004) (Ex. 1005, “Springer”).

² Hoa Nguyen et al., *Learning to Extract Form Labels*, Proceedings of the VLDB Endowment, Vol. 1, Issue 1 (Aug. 2008) (Ex. 1032, “Nguyen”).

³ U.S. Patent App. Pub. 2013/0104029 A1 (pub. Apr. 25, 2013) (Ex. 1009, “Hendry”).

⁴ U.S. Patent App. Pub. 2010/0205523 A1 (pub. Aug. 12, 2010) (Ex. 1015, “Lehota”).

2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). In evaluating these factors, we “take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6.

Patent Owner contends that we should exercise our discretion to deny institution in view of the parallel district court action involving the '877 patent and related patents. Prelim. Resp. 1. Both the Petition and the Preliminary Response address the *Fintiv* factors, but neither paper considers the effect of the transfer of the district court case to the Western District of New York.⁵ See Pet. 5–9; Prelim. Resp. 1–8. Neither party requested additional briefing, so we do not have the benefit of the parties' views regarding facts subsequent to the transfer that might be relevant to a *Fintiv* analysis.

The docket sheet in the New York proceeding indicates that immediately after the case was transferred, the trial judge ordered the parties to file a joint status report summarizing the dispute, the procedural history,

⁵ Patent Owner filed its Preliminary Response the same day the Texas district court ordered the case transferred to the Western District of New York. See Prelim. Resp. 8.

the current status, and the outstanding motions. Ex. 3001, 14 (Dkt. 80 (text order)). On March 25, 2022, the parties filed their Joint Status Report indicating, among other things, that fact discovery had not been completed when the case was transferred. *See* Ex. 3002, 4–5, 7, 10–11. In the Report, AudioEye proposed extending by about four weeks the remaining dates on the trial schedule, including a trial date of October 17, 2022, subject to the Court’s availability, rather than September 19, 2022, as previously scheduled in the Texas proceeding. *Id.* at 7–9. accessiBe stated that “[g]iven the status of the case, AudioEye’s proposal of a case schedule is premature,” and indicated it would request a partial stay of the case pending the resolution of *inter partes* reviews before the PTAB. *Id.* at 11.

On March 28, 2022, the Court directed accessiBe to file a formal motion to stay and stated that “[t]he Court will address the other matters raised by the parties in the status report thereafter.” Ex. 3001, 14 (Dkt. 86 (text order)). Briefing on the motion, including opposition and reply, was completed on May 6, 2022. *Id.* at 15 (Dkt. 92, 97, 98). No further action has been taken by the district court. *See id.*

Under these circumstances, we decline to exercise our discretion to deny institution. There was some investment by the parties and the court in the Texas proceeding prior to transfer, including completed claim construction proceedings and the exchange of invalidity and infringement contentions. *See* Pet. 7; Prelim. Resp. 5; Ex. 2003 (claim construction order). However, there has been little investment by the parties or the court since the case was transferred nearly three months ago. The New York district court has not yet set a schedule for the close of fact discovery, the opening of expert discovery, or any subsequent trial events, including a trial date. The Texas trial date was approximately nine months earlier than the

projected deadline for a final written decision in this proceeding, but we cannot speculate as to a new trial date in the New York proceeding, especially in view of the little progress that appears to have been made since the case was transferred. Moreover, according to the Joint Status Report filed in the New York proceeding, no claims of the '877 patent are currently asserted in the district court case. Ex. 3002, 5. Thus, on the facts presented here, we determine that the *Fintiv* factors as a whole do not weigh in favor of exercising discretionary denial. Accordingly, we decline to exercise our discretion under § 314(a) to deny institution of *inter partes* review.

B. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective indicia of non-obviousness.⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Level of Ordinary Skill in the Art

Citing the testimony of Dr. Fogarty, Petitioner asserts that a person of ordinary skill in the art would have had “at least a bachelor’s degree in

⁶ With respect to the fourth *Graham* factor, the parties at this time do not present arguments or evidence regarding objective indicia of non-obviousness. See Pet. 75; see generally Prelim. Resp. Therefore, the obviousness analysis at this stage of the proceeding is based on the first three *Graham* factors.

software engineering, computer science, computer engineering, or related field, with at least two years of experience with software application development focused on accessibility.” Pet. 18 (citing Ex. 1002 ¶ 34).

Petitioner also asserts that a person could qualify as a person of ordinary skill in the art “with some combination of (1) more formal education (such as a master’s of science degree) and less technical experience or (2) less formal education and more technical or professional experience with software application development focused on accessibility.” *Id.* at 18–19 (citing Ex. 1002 ¶ 34).

At this stage of the proceeding, Patent Owner does not dispute Petitioner’s assessment of the level of ordinary skill in the art. *See generally* Prelim. Resp. Based on the present record, and for purposes of this Decision, we adopt Petitioner’s assessment of the level of ordinary skill in the art because it is consistent with the ’877 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). However, we omit the qualifiers “at least” before Petitioner’s description of the degree and experience because this could encompass levels of skill that are beyond ordinary.

D. Claim Construction

In this *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2021). In applying this standard, we generally give claim terms their ordinary and customary meaning as would be understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Neither party proposes constructions for any claim terms at this time. *See* Pet. 19; *see generally* Prelim. Resp. For purposes of this Decision, we determine that no claim terms require express construction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (holding that only claim terms in controversy need to be construed, and only to the extent necessary to resolve the controversy (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

E. Overview of the Asserted Prior Art

1. Springer

Springer describes a method and system for checking an HTML document of a web page for compliance with accessibility standards set forth in Section 508 of the Rehabilitation Act of 1973. Ex. 1005 ¶ 7. As described in Springer, its system “run[s] a checker against an HTML document; flag[s] a violation of a requirement of Section 508; and fix[es] a section of the HTML document containing the flagged violation by modifying the HTML code.” *Id.* Springer states that the described method and system apply equally to compliance with any accessibility standards. *Id.* ¶ 58.

Springer describes “checkers” as “sets of tests that are run against documents, for example files or web pages, to analyze compliance with a standard.” *Id.* ¶ 14. Springer’s checkers analyze web pages using the “tree format” of the HTML code. *Id.* Springer also describes “fixers,” which are “algorithms that make changes to HTML documents or other documents to bring the documents into compliance with the standard.” *Id.* ¶ 16.

Table I(a) of Springer identifies exemplary checkers that check compliance with accessibility standards in 36 C.F.R. § 1194.22; Table I(b)

describes the functionalities of those checkers. Ex. 1005 ¶¶ 14, 21 (Table I(a)), 22 (Table I(b)). Table II(a) identifies corresponding fixers for those accessibility standards; Table II(b) describes the functionalities of those fixers. *Id.* ¶¶ 16, 23 (Table II(a)), 24 (Table II(b)). Excerpted entries from Tables I(a), I(b), II(a), and II(b) are reproduced below:

TABLE I(a)

<u>36 CFR § 1194.22 Checkers</u>			
36 CFR § 1194.22 Paragraph	Description	Checker	Manual Review
N	Paragraph (n) requires that people with disabilities have access to interactive electronic forms.	FormChecker	No Manual Review Required

TABLE I(b)

<u>Checker Functionality</u>		
36 CFR § 1194.22 Paragraph	Checker	Functionality
N	FormChecker	Checks that OPTIONS are grouped by OPTGROUP tags. Checks that no form controls are missing labels. Checks that labels are positioned properly. Checks that labels are explicitly associated with form controls. Checks that FORMs are associated with FIELDSET groups. Checks that a FIELDSET group contains a LEGEND. Checks that one OPTION form control is selected by default.

TABLE II(a)

<u>36 CFR § 1194.22 Fixers</u>			
36 CFR § 1194.22 Paragraph	Description	Fixers	Manual Fixes
N	Paragraph (n) requires that people with disabilities have access to interactive electronic forms.	FormFixer	None

TABLE II(b)		
<u>Fixer Functionality</u>		
36 CFR § 1194.22		
Paragraph	Fixer	Functionality
N	FormFixer	Adds OPTGROUP tags to element groups Adds LABEL elements to forms Explicitly associates a LABEL element with the form control Associates a FIELDSET grouping with a form Adds a LEGEND to a FIELDSET Adds a “selected” attribute to one OPTION element in each SELECT form control

The excerpts from Tables I(a) and I(b) above list a checker named “FormChecker,” and the excerpts from Tables II(a) and II(B) list a corresponding fixer named “FormFixer.” *Id.* ¶¶ 21–24.

One type of web page element that Springer remediates is a form field that lacks a label. *Id.* ¶¶ 37–38. A form field is an HTML element that allows data entry into a form. *Id.* ¶ 37. In order to be accessible to people with disabilities, a form field must have an associated label. *Id.* If it does not, it violates the accessibility standard shown in the excerpts from Tables I(a), I(b), II(a), and II(b) above. *Id.*

Springer discloses that “[a] form label checker may be used to identify a form field in a document that does not have a label explicitly associated with it.” *Id.* ¶ 38. As shown above in Table 1(b), the FormChecker tool “[c]hecks that no form controls are missing labels” and “[c]hecks that labels are explicitly associated with form controls.” *Id.* ¶ 22. Springer also discloses that “[a] form label fixer may then be used to find a piece of text in the HTML page that is most likely the intended label for the form element.” *Id.* ¶ 38. The form label fixer may search for a nearby piece of text that is a candidate for the form label. *Id.* As shown above in Table II(b), the

FormFixer tool “[a]dds label elements to forms” and “[e]xplicitly associates a LABEL element with the form control.” *Id.* ¶ 24.

2. Lehota

Lehota describes a system for increasing accessibility of a web application to a screen reader. Ex. 1015, code (57). The system includes a screen reader connected to a web browser, where the web browser has a DOM. *Id.* At least one accessibility widget from a widget library is provided to modify the DOM. *Id.* Figure 1 of Lehota, reproduced below, illustrates these system elements:

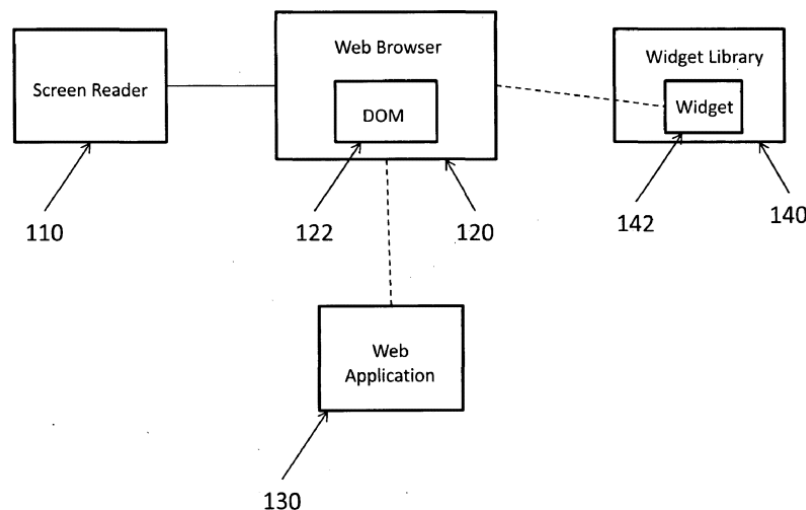


FIG. 1

Figure 1 above is a schematic diagram illustrating a system for enabling screen reader accessibility for a web application.

In one embodiment, a JavaScript call to a widget library (i.e., a collection of files written primarily in JavaScript) is embedded in a web application. *Id.* ¶ 15. This single call invokes a new web widget (i.e., an accessibility widget) that dynamically fixes accessibility problems in the web page, executing directly in the client web browser. *Id.* The accessibility widget “dynamically fixes accessibility problems with the web

page by . . . parsing, and applying any additions, deletions, or modifications to the objects directly in the DOM.” *Id.* ¶ 18. Objects in the DOM include standard and non-standard objects identified in HTML such as “a link, anchor, image, table, caption, button, input, span, [or] division tag.” *Id.* ¶ 7. Specific examples of modifying the DOM include “modifying HTML attributes (e.g., ALT tags of images) within the web application,” “adding titles readable by the screen reader to frames of the web application, and/or labeling form elements of the web application.” *Id.* ¶ 8. The modified DOM is then output to the screen reader user or a rendered web page for use by the screen reader user. *Id.* ¶ 29.

3. *Nguyen*

Nguyen describes using machine learning (ML) to determine and extract labels associated with web page elements. Ex. 1032, 1. Nguyen performs this method by using learning classifiers to identify element labels based on form layout patterns. *Id.*

4. *Hendry*

Hendry discloses methods for automatically modifying documents, including web pages, to improve document accessibility. Ex. 1009 ¶¶ 12, 42. Hendry explains that “[m]odifying a document to improve document accessibility refers to modifications which result in proper or better interpretation by an assistive technology.” *Id.* ¶ 12. Accessibility features that Hendry adds to documents “may be particular tags which, when added to a document, allow for proper interpretation of the document by assistive technologies.” *Id.* ¶ 21. One example of an accessibility feature is alternative text for non-text content. *Id.* ¶ 24. Hendry discloses that the accessibility features may be stored separately in a data repository for future use. *Id.* ¶¶ 21, 41.

Hendry discloses that its methods may be performed on a client machine, a server machine, or a combination of the two. *Id.* ¶ 59. In one embodiment, the client requests document modification by the server; the server accesses the document and adds JavaScript code that, when executed, would produce an accessibility-enabled version of the document that can be interpreted by a screen reader; the server sends the document containing the code to the client; and the client executes the code to add one or more accessibility features to the document. *Id.* ¶ 58. Hendry also describes defining a model of an HTML or XML document using a DOM. *Id.* ¶ 65.

F. Obviousness over Springer, Nguyen, and Hendry

Petitioner contends that claims 1–21 of the ’877 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Springer, Nguyen, and Hendry, citing the declaration of Dr. Fogarty for support. Pet. 32–60 (citing Ex. 1002). Patent Owner does not address Petitioner’s obviousness contentions in the Preliminary Response. For the reasons discussed below, we determine that the evidence presented demonstrates a reasonable likelihood that Petitioner would prevail in showing that the challenged claims are unpatentable on this asserted ground.

1. Independent Claim 1

The preamble of claim 1 recites “[a] computer-implemented method of programmatically assigning a descriptive attribute to an element on a web page to enable an audible description of the element, the web page having an associated document object model (DOM).”⁷ Ex. 1001, 18:57–60.

Petitioner contends that Springer discloses assigning a descriptive attribute,

⁷ For purposes of this Decision, we need not determine whether the preamble is limiting because we find Petitioner has made a sufficient showing that the prior art teaches its subject matter.

such as a label, to an element on a web page, such as a form field. Pet. 35–36 (citing Ex. 1005 ¶¶ 37–38, Tables I(b), II(b)). Petitioner contends that a person of ordinary skill in the art would have understood that Springer’s added descriptive attributes enable commonly used screen readers to provide an audible description of the input field. *Id.* at 36 (citing Ex. 1005 ¶ 29; Ex. 1002 ¶ 114). Additionally, Petitioner contends that Springer discloses modifying web pages through a document object model in the form of a “document tree” or “tree format,” and that a person of ordinary skill in the art would have understood that document object model to refer to the W3C DOM standard, “the most well-known document object model that was in extensive use at the time of the ’877 patent.” *Id.* (citing Ex. 1005 ¶¶ 15, 25, 38, 49; Ex. 1002 ¶¶ 114–115; Ex. 1014 (W3C DOM Specification)).

Petitioner also contends that Hendry discloses automatically modifying a web page to assign a descriptive attribute to an element to improve accessibility. *Id.* (citing Ex. 1009 ¶ 12). Petitioner further contends that Hendry’s method includes defining a model of an HTML or XML document (e.g., web page) using a DOM. *Id.* (citing Ex. 1009 ¶ 65).

The body of claim 1 begins with the step of “accessing, by a computer system, a code associated with the web page, the code comprising at least HTML or the DOM.” Ex. 1001, 18:62–64 (limitation 1[a]). Petitioner contends that Springer discloses that it interacts with web pages through a “document tree” or “tree format,” which is a DOM. Pet. 37 (citing Ex. 1005, ¶¶ 15, 25, 38, 49; Ex. 1002 ¶ 117). Petitioner also cites Hendry’s disclosure that its method includes defining a model of an HTML or XML document (e.g., web page) using a DOM. *Id.* (citing Ex. 1009 ¶¶ 60, 65).

Claim 1 next recites “detecting, by the computer system, one or more compliance issues relating to web accessibility standards in the code,

wherein at least one of the one or more compliance issues comprises an input field lacking an adequate descriptive attribute.” Ex. 1001, 18:65–19:2 (limitation 1[b]). Petitioner contends that Springer discloses a “FormChecker” tool that detects a form field (i.e., an “input field”) that lacks a descriptive label. Pet. 38 (citing Ex. 1005 ¶¶ 37–38). Petitioner also cites Hendry, which discloses that a “document is analyzed to identify inaccessible features,” and in one embodiment, “an inaccessible feature corresponds to one or more elements that lack a label.” *Id.* (quoting Ex. 1009 ¶¶ 28, 60) (citing Ex. 1009 ¶¶ 71, 83).

Claim 1 also recites “mapping the one or more compliance issues to one or more pre-existing remediation code.” Ex. 1001, 19:3–4 (limitation 1[c]). Petitioner contends Springer discloses that each checker, such as the FormChecker tool, has a corresponding fixer tool (i.e., “pre-existing remediation code”), such as FormFixer. Pet. 38–39 (citing Ex. 1005 ¶ 10, 21, Tables I(b), II(b)). Petitioner further contends that a specific checker tool in Springer looks for a specific type of compliance issue, each violation or issue detected by the checker is mapped to the corresponding fixer tool, and the fixer tool automatically remediates that type of violation or issue. *Id.* at 39 (citing Ex. 1005 ¶¶ 10, 21, Tables I(b), II(b)). Petitioner contends that each fixer tool is pre-existing remediation code that, when executed, remediates the web page. *Id.* (citing Ex. 1002 ¶ 120). For example, Springer’s FormChecker identifies unlabeled form fields, and the FormFixer remediates those elements. *Id.* (citing Ex. 1005 ¶¶ 37–38, Tables I(b), II(b)).

Claim 1 further requires the pre-existing remediation code to comprise three steps. The first step is “determining, by the computer system, one or more contextual cues associated with the input field.” Ex. 1001, 19:6–7 (limitation 1[d]). Petitioner contends Springer describes analyzing code

nearby an untagged input field to identify text that can be used as a label for the untagged input field. Pet. 39 (citing Ex. 1005 ¶¶ 37–38). According to Petitioner, Springer identifies candidate text for a label by examining nearby code based on a series of rules and steps (i.e., heuristics). *Id.* at 39–40 (citing Ex. 1005 ¶¶ 9, 38; Ex. 1002 ¶ 123). Petitioner also contends Springer discloses several rules or steps to follow as part of an “evaluation process” to determine appropriate label text based on context clues. *Id.* at 40 (citing Ex. 1005 ¶¶ 41–49). For example, Petitioner asserts, Springer looks first at the closest elements and attributes in the code for text candidates and then expands outward. *Id.* (citing Ex. 1005 ¶ 49).

Petitioner further contends that Nguyen teaches extracting candidate labels for an element, such as an input field, by examining text fields close to the element. *Id.* (citing Ex. 1032, 1, 4). As Nguyen discloses, its ML system “first generates a series of candidate mappings between form elements and textual labels in the neighborhood of the element,” and “[t]he candidate mapping generator must identify a set of possible labels for each form element.” *Id.* (quoting Ex. 1032, 3). Petitioner contends Nguyen’s system analyzes text based on the web page context, such as the distance of the candidate text from the untagged element. *Id.* at 41 (citing Ex. 1032, 3). Petitioner further contends Nguyen teaches that generating candidate labels can depend on the type of input field or element and the process uses contextual cues such as proximity, relative position, and type of text or label candidates compared to the element. *Id.* (citing Ex. 1032, 4 (Table 2)).

The next step in claim 1 is “obtaining, by the computer system, a descriptive attribute based on applying an artificial intelligence algorithm, wherein the artificial intelligence algorithm dynamically generates the descriptive attribute based on the one or more contextual cues.” Ex. 1001,

19:8–12 (limitation 1[e]). For this limitation, Petitioner cites Nguyen’s ML techniques using learning classifiers to identify element-label mappings, resulting in improved accuracy over prior heuristic-based approaches. Pet. 42 (citing Ex. 1032, 1). According to Petitioner, Nguyen discloses selecting among candidate labels using ML techniques, which a person of ordinary skill in the art would have recognized is a type of artificial intelligence, to analyze contextual cues. *Id.* at 43 (citing Ex. 1032, 5–6; Ex. 1002 ¶ 129). Petitioner contends that Nguyen describes different ML techniques for generating candidate labels that weigh various features (i.e., contextual cues) differently. *Id.* (citing Ex. 1032, 5–6; Ex. 1002 ¶ 129).

The last step in claim 1 is “assigning, by the computer system, the descriptive attribute to the input field, the descriptive attribute assigned to the input field adapted to enable an assistive technology to speak the descriptive attribute to a user.” Ex. 1001, 19:13–17 (limitation 1[f]). Petitioner cites Springer’s disclosure that its system is intended to be used by “a user of an assistive technology that permits verbal communication of web content.” Pet. 43 (quoting Ex. 1005 ¶ 29). Petitioner also cites Springer’s disclosure that its FormFixer can insert a label (piece of text identified using contextual cues) directly into the document tree (i.e., DOM) by assigning it to the appropriate input field. *Id.* (citing Ex. 1005 ¶ 38). According to Petitioner, a person of ordinary skill in the art would have understood that FormFixer assigns descriptive attributes to an appropriate form field to enable commonly used screen readers to provide an audible description of the form field. *Id.* (citing Ex. 1002 ¶ 130).

Petitioner contends that a person of ordinary skill in the art would have been motivated to improve the accuracy of Springer’s FormFixer tool by using ML, as described in Nguyen, to better analyze web page context

and extract an appropriate label. *Id.* at 32. Petitioner contends that a person of ordinary skill in the art would have recognized that Springer’s FormFixer tool uses a heuristic method (e.g., set of rules) to analyze contextual cues in the code to identify candidate text for a missing label. *Id.* at 33 (citing Ex. 1005 ¶ 38; Ex. 1002 ¶ 107). Petitioner further contends that a person of ordinary skill in the art would have been motivated to replace Springer’s heuristic method with Nguyen’s ML-based contextual analysis method. *Id.* (citing Ex. 1002 ¶¶ 107–108). According to Petitioner and Dr. Fogarty, it was well known at the time of the ’877 patent that machine learning, a type of artificial intelligence, could be an improvement over heuristic methods because machine learning can constantly improve the analysis to determine more accurately the best label for an element. *Id.* (citing Ex. 1002 ¶¶ 107–108).

Moreover, as Petitioner asserts, Nguyen explicitly discloses that its ML-based approach “obtains significantly higher accuracy and is more robust to variability in form layout than previous label extraction techniques,” such as those relying on “heuristics (e.g., based on the textual layout of the page) to guess the appropriate label for a given form attribute.” Ex. 1032, 1; *see* Pet. 33–34. Petitioner contends that a person of ordinary skill in the art would have understood that applying Nguyen’s machine learning techniques as part of Springer’s form label fixer would achieve beneficial results by improving the accuracy of finding appropriate label text for untagged input fields as compared to Springer’s heuristic methods. Pet. 34 (citing Ex. 1002 ¶¶ 108–110). Petitioner further contends that a person of ordinary skill in the art would have expected the combination to succeed with minimal modification, as Nguyen explicitly teaches that a heuristic method like Springer’s can be improved by using a machine

learning method that performs the same type of analysis with better accuracy. *Id.* (citing Ex. 1002 ¶¶ 108–110).

Petitioner additionally contends that a person of ordinary skill in the art would have been further motivated to incorporate Hendry’s teachings “to take advantage of its remote computing capabilities, where local and remote computers are in communication and split the various accessibility remediation steps between the two systems.” *Id.* (citing Ex. 1002 ¶ 111). Petitioner contends a person of ordinary skill in the art would have been motivated to take advantage of the processing power and data storage capabilities of remote servers, as taught in Hendry, while still executing the remediation on the user’s client computer, as also taught in Hendry. *Id.* at 35 (citing Ex. 1002 ¶ 113). Petitioner contends that a person of ordinary skill in the art would have expected the combination of Springer, Nguyen, and Hendry to succeed with minimal modification as remote computing and separating processing steps between computers was well known and understood at the time of the ’877 patent. *Id.* (citing Ex. 1002 ¶ 113).

Based on the current record, Petitioner makes a sufficient showing for purposes of institution that the combination of Springer, Nguyen, and Hendry teaches or suggests all the limitations of claim 1 and that a person of ordinary skill in the art would have combined the references in the manner asserted. Accordingly, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that claim 1 is unpatentable as obvious over the combined teachings of Springer, Nguyen, and Hendry.

2. Independent Claim 10

Independent claim 10 contains many of the same limitations as claim 1, and Petitioner relies on its earlier analysis with respect to those limitations. Pet. 51, 53–56. Claim 10 further recites “executing, via a browser operating on a user computer, a code embedded in the web page.” Ex. 1001, 19:63–64. For this limitation, Petitioner contends that all web browsers will execute code embedded in a web page when that web page is opened. Pet. 51–52 (citing Ex. 1002 ¶ 148). Petitioner further cites Hendry, which describes adding code to a document (i.e., embedding code directly in a web page) that, when executed, adds accessibility features to the document. *Id.* at 52 (citing Ex. 1009 ¶¶ 45, 46, 56; Ex. 1002 ¶¶ 149–150).

Petitioner also relies on Hendry for teaching limitations in claim 10 that recite a “remote server.” For instance, claim 10 recites “sending, by the user computer, a remediation request over an electronic network to a remote server, wherein the remediation request is for remediating the web page.” Ex. 1001, 19:65–67. Petitioner cites Hendry’s disclosed embodiment in which remediation code is stored on a server (i.e., “remote computer”) that receives a modification request (i.e., “remediation request”) from a browser on a client (i.e., “user computer”) over the internet (i.e., “an electronic network”). Pet. 53 (citing Ex. 1009 ¶ 58 (“[O]ne document modifier (120) is implemented as a server plugin, launched by server (110), to handle an HTTP request from the client machine (102) for a document (114).”)).

Claim 10 contains additional limitations requiring the remote server to generate “at least one remediation code” that is received by the user computer from the remote server and then executed by the user computer “to process remediation of the web page to enable an audible description for the untagged input field in the web page.” Ex. 1001, 20:1–7. Petitioner again

cites Hendry's disclosed embodiment in which the server generates JavaScript code that, when executed, would produce an accessibility-enabled version of the document that can be interpreted by a screen reader; the server sends that code to the client as part of a modified web page in response to a request for remediation; and the client executes the code to add an accessibility feature to the web page. Pet. 53–54 (citing Ex. 1009 ¶ 58).

Based on the current record, Petitioner makes a sufficient showing for purposes of institution that the combination of Springer, Nguyen, and Hendry teaches or suggests all the limitations of claim 10 and that a person of ordinary skill in the art would have combined the references in the manner asserted. Accordingly, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that claim 10 is unpatentable as obvious over the combined teachings of Springer, Nguyen, and Hendry.

3. Dependent Claims 2–9 and 11–21

Petitioner further contends that dependent claims 2–9 and 11–21 would have been obvious over the combination of Springer, Nguyen, and Hendry. Pet. 44–51, 56–60. We have reviewed Petitioner's arguments and evidence and find that Petitioner shows sufficiently that the cited prior art teaches or suggests the limitations of these dependent claims. Accordingly, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that claims 2–9 and 11–21 are unpatentable as obvious over Springer, Nguyen, and Hendry.

G. Obviousness over Lehota, Nguyen, and Hendry

Petitioner contends that claims 1–21 of the '877 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Lehota, Nguyen, and Hendry, citing the declaration of Dr. Fogarty for support. Pet. 60–75 (citing

Ex. 1002). Patent Owner does not address Petitioner's obviousness contentions in the Preliminary Response.

Petitioner contends Lehota discloses the limitations of claims 1 and 10 that Petitioner similarly contends are disclosed by Springer. Pet. 62–65, 69–73. Petitioner further contends that a person of ordinary skill in the art would have been motivated to combine Lehota, Nguyen, and Hendry for similar reasons as one would have been motivated to combine Springer, Nguyen, and Hendry. *Id.* at 60–62. For example, Petitioner contends that Nguyen teaches machine learning as an improved method to generate labels for untagged input fields that could be incorporated into Lehota's accessibility widget system. *Id.* at 61 (citing Ex. 1002 ¶ 172). Petitioner also contends a person of ordinary skill in the art would have been motivated to incorporate Hendry's remote computing embodiments into the combination of Lehota and Nguyen. *Id.* at 61–62 (citing Ex. 1002 ¶ 173).

Based on the current record, Petitioner makes a sufficient showing for purposes of institution that the combination of Lehota, Nguyen, and Hendry teaches or suggests all the limitations of independent claims 1 and 10 and that a person of ordinary skill in the art would have combined the references in the manner asserted. We also have reviewed Petitioner's arguments and evidence regarding dependent claims 2–9 and 11–21, and we find that Petitioner shows sufficiently that the cited prior art teaches or suggests the limitations of these dependent claims. Accordingly, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that claims 1–21 are unpatentable as obvious over the combined teachings of Lehota, Nguyen, and Hendry.

IV. CONCLUSION

After considering the evidence and arguments presented in the Petition and Preliminary Response, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims of the '877 patent is unpatentable.

V. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted for claims 1–21 of the '877 patent on the unpatentability ground asserted in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision.

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PETITIONER:

Sanjeet K. Dutta
Samuel E. Sherry
Luc Dahlin
Michael Ting
GOODWIN PROCTER LLP
sdutta@goodwinlaw.com
ssherry@goodwinlaw.com
ldahlin@goodwinlaw.com
mting@goodwinlaw.com

PATENT OWNER:

Stephen C. Jensen
Jared C. Bunker
KNOBBE, MARTENS, OLSON & BEAR LLP
2scj@knobbe.com
2jcb@knobbe.com