Remarks

The Applicant and the undersigned thank the Examiner for the careful review of this application. The Applicant has amended the claims, where Claim 14 has been cancelled, leaving Claims 1-13, and 15-20 pending in the patent application.

Claims 1, 7, and 16 are the three independent claims. The Applicant respectfully requests reconsideration and allowance of this application in view of the remarks provided below.

Support for Claim Amendments

The Applicant respectfully submits that support for the following claim amendments may be found (but is not limited to) the following original drawings and corresponding text descriptions: a housing [105 – FIG. 2] containing a first light source [245a], a second light source [245b], a camera module [305], and a limited power supply [215, paras. 0053-0054]; the limited power supply [215] providing power to each light source and the camera module; the camera module capturing a first image of an object without any activation of the first light source and second light source when the camera module does not detect a low lighting condition or a strong backlight condition [STEPS 406-408 – FIG. 4A]; the camera module [305] activating the first light source to capture a first image of the object with the first light source when a low lighting condition or a strong backlight condition is detected by the camera module [STEPS 406-410], the camera module determining if a second image of the object is needed using the second light source; the camera module capturing a second image of the object with the second light source if the camera module determines that the second image of the object is needed [STEPS 416-418], whereby the camera module conserves power for the limited power supply [paras. 0003; 0083]. [Emphasis supplied.]

[SEE FIGS. 2 & 4A OF THE ORIGINAL APPLICATION REPRODUCED BELOW]

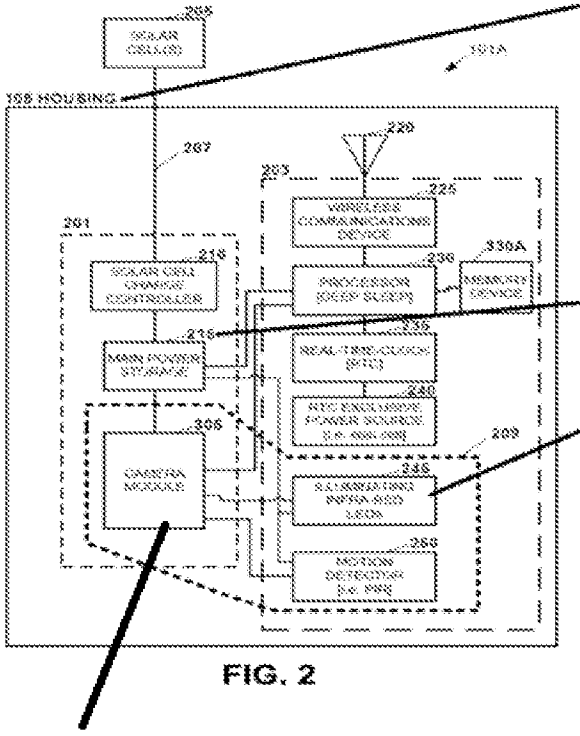


FIG. 2

Housing 105 containing 1st light source 245a & 2nd light source 245b and limited power supply 215

limited power supply 215

1st & 2nd Light sources 245a & 245b

Camera Module 305

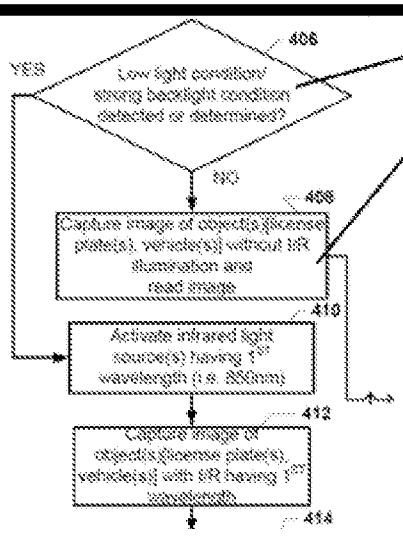


FIG. 4A

Steps 406-408 of Fig. 4A -
- camera module 305 capturing 1st image of an object without any activation of the 1st light source and 2nd light source when low light condition or strong backlight condition NOT detected / sensed
- camera module 305 capturing 1st image of the object by activating 1st light source when low light condition or strong backlight condition IS detected / sensed

Claim Objections

The Examiner has objected to several claims because of a few informalities. The Applicant appreciates the Examiner's detailed comments in this section of her Office Action, which have been adopted in this paper. Accordingly, reconsideration and withdrawal of these objections are respectfully requested.

Claim Rejections – 35 U.S.C. §112(b)

The Examiner has rejected Claims 5-6, 10-12, and 18-19 under 35 U.S.C. §112(b) as being indefinite to particularly point out and distinctly claim the subject matter which the inventors regard as the invention. These rejections are respectfully traversed.

The Applicant also appreciated the Examiner's detailed comments in this section of her Office Action, which explained the Examiner's rationale for these rejections. The Examiner had issue with the term "about" and its connection to the endpoints of the ranges being claimed.

In order to advance the case, the Applicant has replaced the term "about" with the term -approximately- which is fully supported by the original application. The Applicant, via their undersigned representative, will set up a telephonic interview with the Examiner to discuss this term after this paper has been filed.

Request for Telephonic Interview

The Applicant respectfully requests the Examiner to grant a telephone interview with the Applicant's representative after this paper is filed. The Applicant's representative would like explain this response and to discuss the amendments made to overcome the rejections and to advance this case towards an allowance. The Applicant's representative will be telephoning the Examiner shortly after this paper is filed to set up this telephonic interview.

Claim Rejections – 35 U.S.C. § 103

Claims 1-20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Schumacher et al. (WO 2017/173017, hereinafter "the Schumacher reference") in view of Alakarhu et al. (US 2022/0148320, hereinafter "the Alakarhu reference")

The Applicant respectfully disagrees with the rejections and requests withdrawal of the rejections in view of the following remarks.

Amended Independent Claim 1

The Applicant's amended independent Claim 1 is not anticipated or made obvious by the Schumacher & Alakarhu references, alone or in combination, since both of these references fail to teach or suggest the combination of: a housing containing a first light source, a second light source, a camera module, and a limited power supply; the limited power supply providing power to each light source and the camera module; the first light source for generating infrared light at a first wavelength; the second light source for generating infrared light at a second wavelength that is different from the first wavelength; the camera module capturing a first image of an object without any activation of the first light source and second light source when the camera module does not detect a low lighting condition or a strong backlight condition; the camera module activating the first light source to capture a first image of the object with the first light source when a low lighting condition or a strong backlight condition is detected by the camera module, the camera module determining if a second image of the object is needed using the second light source; the camera module capturing a second image of the object with the second light source if the camera module determines that the second image of the object is needed, whereby the camera module conserves power for the limited power supply, as recited in amended independent Claim 1. [Emphasis supplied.]

The Schumacher Reference

Fig. 1A & 5 of the Schumacher reference are reproduced below for the Examiner's benefit and consideration. Fig. 1A of the Schumacher reference illustrates a system 100 that may include image capture device 102. Image capture device 102 may convert light or electromagnetic radiation sensed by image capture sensors 106 into information, such as digital image or bitmap comprising a set of pixels. Each pixel may have chromiance and/or luminance components that represent the intensity and/or color of light or electromagnetic radiation. In some examples, image capture device 102 captures a first image and wherein the first image of the optically active article is captured in a first spectral range within the near-infrared spectrum. Image capture device 102 may capture a second image of the optically active article in a second spectral range within the visible spectrum. Schumacher reference, para. [0027].

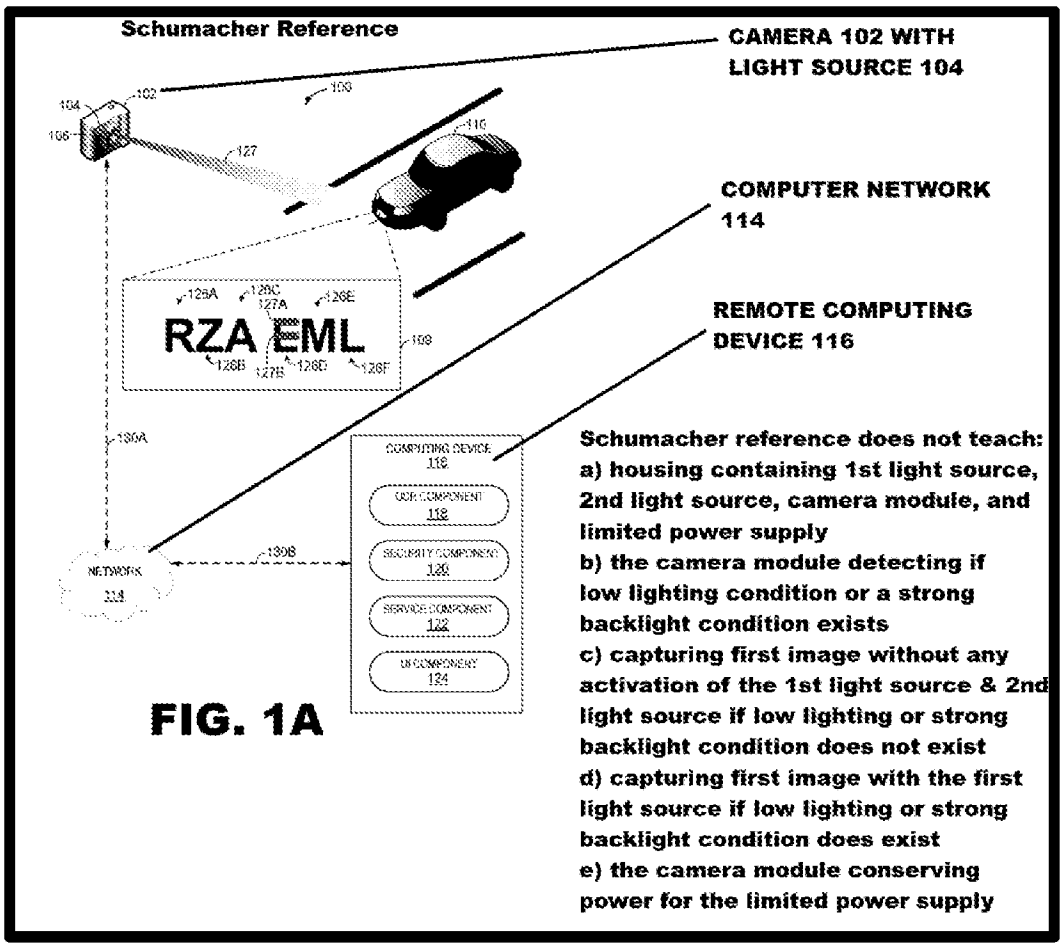


FIG. 1A

The image capture device 102 of the Shumacher reference may include one or more image capture sensors 106 and one or more light sources 104. In some examples, image capture device 102 may include image capture sensors 106 and light sources 104 in a single integrated device, such as shown in FIG. 1A. In other examples, image capture sensors 106 or light sources 104 may be separate from or otherwise not integrated in image capture device 102. Examples of image capture sensors 106 may include semiconductor charge -coupled devices (CCD) or active pixel sensors in complementary metal- oxide-semiconductor (CMOS) or N-type metal-oxide-semiconductor (NMOS, Live MOS) technologies. Digital sensors include flat panel detectors. In the example, image capture device 102 includes at least two different sensors for detecting light in two different wavelength spectrums. In some embodiments, **a first image capture and a second image capture sensor substantially concurrently detect the first and second wavelengths. Substantially concurrently may refer to detecting the first and second wavelengths within 10 milliseconds of one another, within 50 milliseconds of one another, or within 100 milliseconds**

of one another to name only a few examples. Schumacher reference, para. [0028]. {Emphasis supplied.}

Meanwhile, Fig. 5 of the Shumacher reference illustrates a method 500 executed by the computing device 116 of Fig. 1:

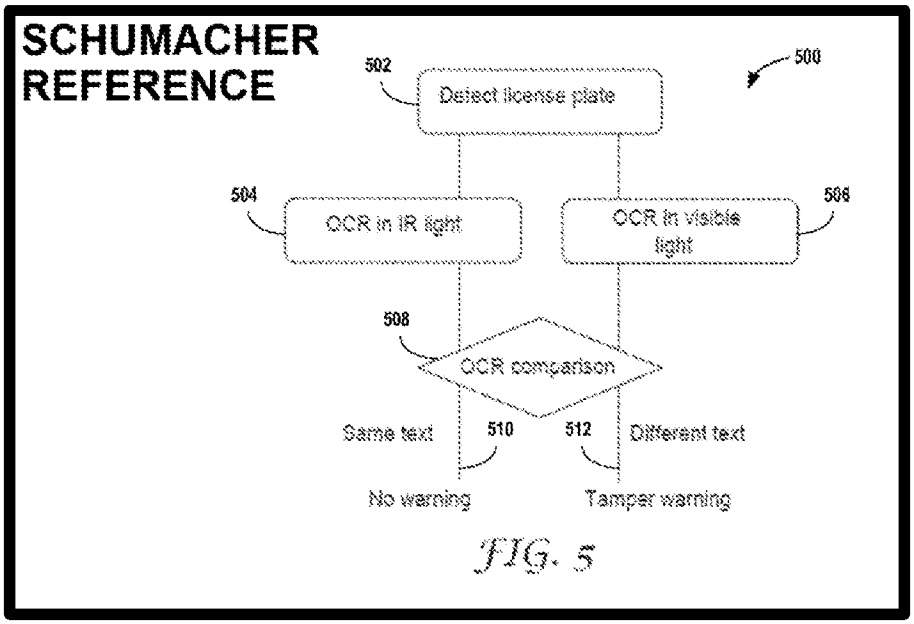


FIG. 5

The flowchart for the method 500 of Fig. 5 of the Schumacher reference (reproduced above) explains how the computing device 116 captures at least two images of a license plate (502) and performs OCR on identifying information of the license plate under a first condition for a first OCR result (504) and under a second condition for a second OCR result (506), as generally shown and described in FIG. 1. Schumacher reference, para. [0077].

The Shumacher reference explains that the computing device 116 **compares the OCR results (or reads) obtained under the first and second conditions (508) [i.e. always using I/R light to illuminate the license plate 108 of Fig. 1 and comparing it to visible light illumination].** If the results are identical or satisfy a degree of similarity that satisfies a threshold (e.g., greater than or equal to the threshold) (510), no notification is displayed / produced by the computing device 116. Schumacher reference, para [0078]. {Emphasis supplied.}

In view of these teachings of the Schumacher reference illustrated in Figs. 1 & 5 (reproduced above), it is apparent to one of ordinary skill in the art that the Shumacher reference does not teach or suggest: a housing containing a first light source, a second light source, a camera module, and a limited power supply; the limited power supply providing power to each light source and the camera module; the camera module capturing a first image of an object without any

activation of the first light source and second light source when the camera module does not detect a low lighting condition or a strong backlight condition; the camera module activating the first light source to capture a first image of the object with the first light source when a low lighting condition or a strong backlight condition is detected by the camera module, the camera module determining if a second image of the object is needed using the second light source; the camera module capturing a second image of the object with the second light source if the camera module determines that the second image of the object is needed, whereby the camera module conserves power for the limited power supply, as recited in amended independent Claim 1.

The Examiner also admits that the Schumacher reference does not teach or suggest the camera module determining if the second image of the object is needed. The Schumacher reference is designed to always compare an image of an object captured with a first light source (i.e. visible light) and an image of the object captured with a second light source (i.e. LED I/R light), and then comparing the two images, as evidenced by Fig. 5 (reproduced above). This allows the system of Shumacher to determine if a license plate has been tampered with (i.e. a person trying to change information / create counterfeit information that is visible in the visible spectrum, and not realizing there exists information on a license plate that is in the infrared spectrum. See Schumacher reference, para. [0006].)

The design of the Schumacher reference to always use a light source to illuminate an object consumes significantly more energy and power compared to a design which does not require any illumination of an object. In view of these teachings, it is apparent that the Schumacher reference is not concerned with conserving any power needed to illuminate a license plate, since the Schumacher reference always illuminates license plates with I/R light. Further, the Schumacher does not discuss any limited power supply, such as a rechargeable battery, or how such a limited power supply would power a camera module and two light sources that have different wavelengths.

The Alakarhu reference

Fig. 1B and Fig. 3 of the Alakarhu reference are reproduced below:

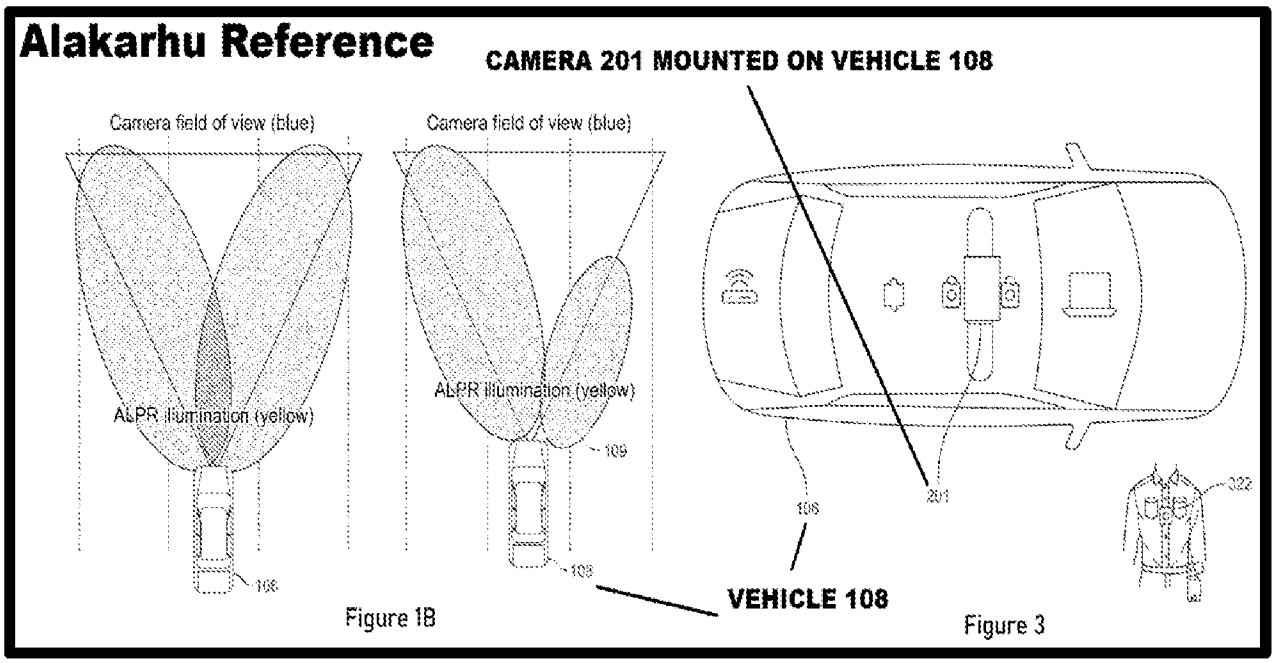


Fig. 1B and Fig. 3 of the Alakarhu reference (reproduced above) demonstrate that the camera 201 is always mounted on a vehicle 108. As understood by one of ordinary skill in the art, a vehicle, such as a automobile having an internal combustion engine, may produce and store its own electrical power. Therefore, its electrical power is not limited because of this power generation.

Therefore, similar to the Schumacher reference, the Alakarhu reference does not provide any teaching of a limited power supply for its camera 201, nor do these references provide any teachings of power conservation. Thus, the Alakarhu reference, like the Schumacher reference, fails to provide any teaching of: a housing containing a first light source, a second light source, a camera module, and a limited power supply; the limited power supply providing power to each light source and the camera module; the camera module capturing a first image of an object without any activation of the first light source and second light source when the camera module does not detect a low lighting condition or a strong backlight condition; the camera module activating the first light source to capture a first image of the object with the first light source when a low lighting condition or a strong backlight condition is detected by the camera module, the camera module determining if a second image of the object is needed using the second light source; the camera module capturing a second image of the object with the second light source if the camera module determines that the second image of the object is needed, whereby the camera module conserves power for the limited power supply, as recited in amended independent Claim 1.

While the Examiner pointed out that Fig. 12 & Fig. 13 of the Alakarhu reference provide some teachings of optimization for detecting license plates on vehicles, that may include determining whether a second image is needed, these teachings do not address the substantial deficiencies noted above where the Alakarhu reference is not concerned with energy conservation or a limited power supply, since the camera 201 is powered by a vehicle 108. Further, the Applicant notes that the Examiner's proposed modification of the Schumacher reference may change or alter a principle of operation of the Schumacher reference, which always NEEDS two images in order to detect if a license plate has been tampered with (i.e. is the visible information in visible light from a first image different from the information detectable with infrared light in a second image illuminated with the infrared light). However, since both references still do not teach the proposed combination of elements listed above, a discussion about altering a principle of operation the Shumacher reference when combined with the Alakarhu reference is not warranted at this time.

In view of the differences between the Applicant's amended independent Claim 1 and the Schumacher & Alakarhu references, one of ordinary skill in the art would recognize that these references alone or in combination do not disclose or suggest the combination of recitations as set forth in the Applicant's amended independent Claim 1. Accordingly, the Applicant respectfully requests reconsideration and allowance of amended independent Claim 1.

Amended Independent Claim 7

The Applicant's amended independent Claim 7 is not anticipated or made obvious by the Schumacher & Alakarhu references because these references fails to disclose or suggest a system that includes the combination of: a housing containing a first light emitting diode (LED), a second LED, a camera module, and a limited power supply; the limited power supply providing power to each LED and the camera module; the first LED for generating infrared light at a first wavelength; the second LED for generating infrared light at a second wavelength that is different from the first wavelength; the camera module capturing a first image of an object without any activation of the first LED and second LED when the camera module does not detect a low lighting condition or a strong backlight condition; the camera module activating the first LED to capture a first image of the object with the first LED when a low lighting condition or a strong backlight condition is detected by the camera module, the camera module determining if a second image of the object is

needed using the second LED; the camera module capturing a second image of the object with the second LED if the camera module determines that the second image of the object is needed, whereby the camera module conserves power for the limited power supply, as recited in amended independent Claim 7. [Emphasis added.]

Similar to the arguments made above for amended independent Claim 1, both the Schumacher & Alakarhu references fail to suggest or teach: a limited power supply; the limited power supply providing power to each LED and the camera module; the camera module capturing a first image of an object without any activation of the first LED and second LED when the camera module does not detect a low lighting condition or a strong backlight condition; the camera module activating the first LED to capture a first image of the object with the first LED when a low lighting condition or a strong backlight condition is detected by the camera module, the camera module determining if a second image of the object is needed using the second LED; the camera module capturing a second image of the object with the second LED if the camera module determines that the second image of the object is needed, whereby the camera module conserves power for the limited power supply, as recited in amended independent Claim 7.

In view of the differences between the Applicant's amended independent Claim 7 and the Schumacher & Alakarhu references, one of ordinary skill in the art would recognize that these references alone or in combination do not disclose or suggest the recitations set forth in the Applicant's amended independent Claim 7. Accordingly, the Applicant respectfully requests reconsideration and allowance of amended independent Claim 7.

Amended Independent Claim 16

The Applicant's amended independent Claim 16 is not anticipated or made obvious by the Schumacher & Alakarhu references because these references fails to disclose or suggest a system that includes the combination of: a housing containing a first light emitting diode (LED), a second LED, a camera processor, and a limited power supply; the limited power supply providing power to each LED and the camera processor; the first LED for generating infrared light at a first wavelength; the second LED for generating infrared light at a second wavelength that is different from the first wavelength; the camera processor capturing a first image of an object without any activation of the first LED and second LED when the camera processor does not detect a low lighting condition or a strong backlight condition; the camera processor activating the first LED

to capture a first image of an object with the first LED when a low lighting condition or a strong backlight condition is detected by the camera module, the camera processor determining if a second image of the object is needed using the second LED; the camera processor capturing a second image of the object with the second LED if the camera processor determines that the second image of the object is needed, whereby the camera processor conserves power for the limited power supply, as recited in amended independent Claim 16. [Emphasis added.]

Similar to the arguments made above for amended independent Claim 1, both the Schumacher & Alakarhu references fail to suggest or teach: a limited power supply; the limited power supply providing power to each LED and the camera processor; the camera processor capturing a first image of an object without any activation of the first LED and second LED when the camera processor does not detect a low lighting condition or a strong backlight condition; the camera processor activating the first LED to capture a first image of an object with the first LED when a low lighting condition or a strong backlight condition is detected by the camera module, the camera processor determining if a second image of the object is needed using the second LED; the camera processor capturing a second image of the object with the second LED if the camera processor determines that the second image of the object is needed, whereby the camera processor conserves power for the limited power supply, as recited in amended independent Claim 16. [Emphasis added.]

In view of the differences between the Applicant's amended independent Claim 16 and the Schumacher & Alakarhu references, one of ordinary skill in the art would recognize that these references alone or in combination do not disclose or suggest the recitations set forth in the Applicant's amended independent Claim 16. Accordingly, the Applicant respectfully requests reconsideration and allowance of amended independent Claim 16.

Dependent Claims 2-6, 8-13, 15, and 17-20

The Applicant respectfully submits that the above-identified dependent claims are allowable because the independent claims from which they depend are patentable over the cited reference. The Applicant also respectfully submits that these dependent claims recite patentable features that are not taught or suggested by the prior art of record.

The rejections of these dependent claims are believed to be moot in view of their independent base claims being allowable over the art of record for the reasons described above

with reference to independent Claims 1, 7, & 16. For at least these reasons, the Applicant respectfully requests that the Examiner withdraw the pending rejections of dependent Claims 2-6, 8-13, 15, and 17-20.

CONCLUSION

The foregoing is submitted as a full and complete response to the Non-Final Office Action transmitted on December 18, 2024. The Applicant has submitted remarks to traverse the pending rejections and to identify the differences between the Claims and the prior art. The Applicant respectfully submits that the present application is in condition for allowance. Such Action is hereby courteously solicited.

Should the Examiner have any comment regarding the Applicant's response or believe that a teleconference would expedite prosecution of the pending claims, Applicant requests that the Examiner telephone Applicants' undersigned registered patent lawyer listed below.

Respectfully submitted,

SMITH TEMPEL
FOR THE APPLICANT
Customer Number 35856

Date: MARCH 18, 2025

By: **/SPW/**

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