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(71) Applicant(s):
Facense Ltd.
(Incorporated in Israel)
POB 294, Kiryat Tivon 36010, Israel

(72) Inventor(s):
Arie Tzvieli
Gil Thieberger
Ari M Frank

(74) Agent and/or Address for Service:
Active Knowledge Ltd
85 Great Portland Street, First Floor, London,
W1W 7LT, United Kingdom

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(54) Title of the Invention: **Systems and methods to detect breathing parameters and provide biofeedback**
Abstract Title: **Systems and methods to detect breathing parameters and provide biofeedback**

(57) Described herein are various embodiments of wearable systems that collect thermal measurements related to respiration and/or brain activity. The systems may optionally include a frame that is worn on a user's head, and at least one non-contact thermal camera that is physically coupled to the frame and located close to the user's face. In one embodiment, each thermal camera takes thermal measurements of at least one of: a portion of the right side of the user's upper lip, a portion of the left side of the user's upper lip, and a portion of the user's mouth. The thermal measurements used by a computer to calculate breathing related parameters, such as breathing rate, an extent to which the breathing was done through the mouth/nostrils, and ratio between exhaling and inhaling durations. In another embodiment, a thermal camera takes measurements of the forehead, which are indicative of brain activity of the user.

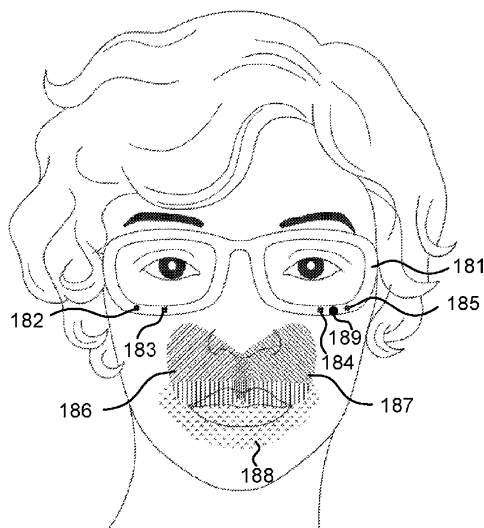


FIG. 22