

# SnapAid patent portfolio

- A. “Real time assessment of picture quality.”
  - 1. US Patent No. 9,338,348
  - 2. US Patent No. 9,661,226
- B. “System and method for controlling a camera based on processing an image captured by other camera”
  - 3. US Patent 9,661,215
  - 4. China 201580005858.X (PPH approved)
  - 5. EP 15782955.7
- C. “Estimating and using relative head pose and camera field-of-view”
  - 6. WO 2016/174659 (PPH national phase filling in US, EU, CN in Oct-Nov 2017. PPH in south Korea possible)

Other inventions inside filling PCT/IL2015/050413 (published as US Patent 9,661,215)

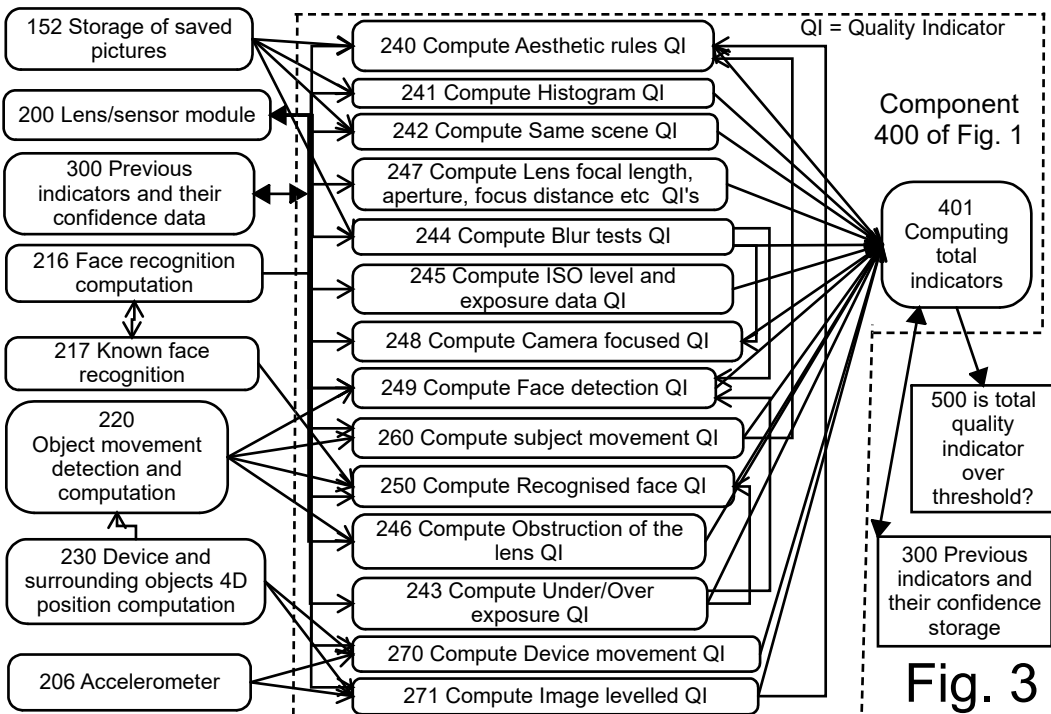
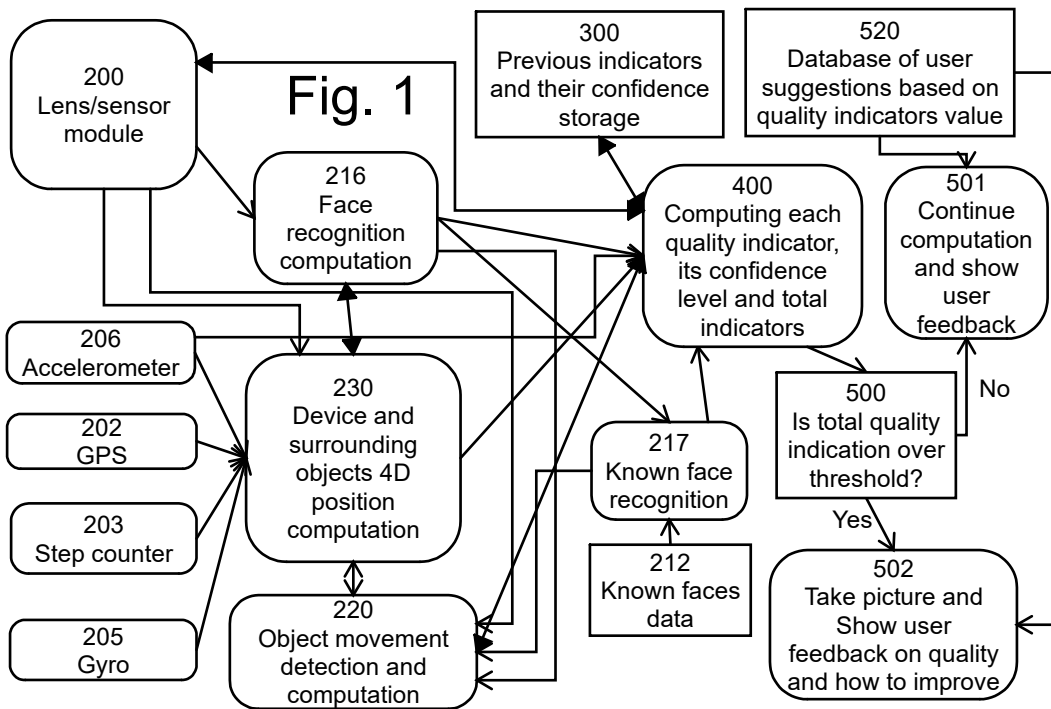
- D. “Real Time Assessment of Picture Quality using multi frame confidence”
- E. “Face detection and exposure confidence using previous frames data”

## Short summery of inventions

### “Real time assessment of picture quality.”

Prior art has used certain independent quality indicators, each giving a quality of one particular aspect of a picture, for a given picture.

In this invention, the weight of one indicator will take into account data from other quality indicator/s e.g. their quality indicator value, weight, *confidence level* (explained forthwith) in them and their previous value, weight and confidence level. For example, if both device shake quality indicator and/or camera focus quality indicator indicate a poor quality, disregard use of aesthetic quality indicator in total computation, even if user indicated that he would like to give it a high priority. This will prevent the device from taking a picture when the picture is blurry, as is the case in prior art.



“System and method for controlling a camera based on processing an image captured by other camera”

Using **first** camera (say smartphone selfie camera) to detect user face and calculate **user gaze** direction, and determine if **second** (main camera) **see what user sees**. If so, take a picture without need of user pressing a button. If not, notify user (shake/sound) to adjust smartphone orientation.

50a

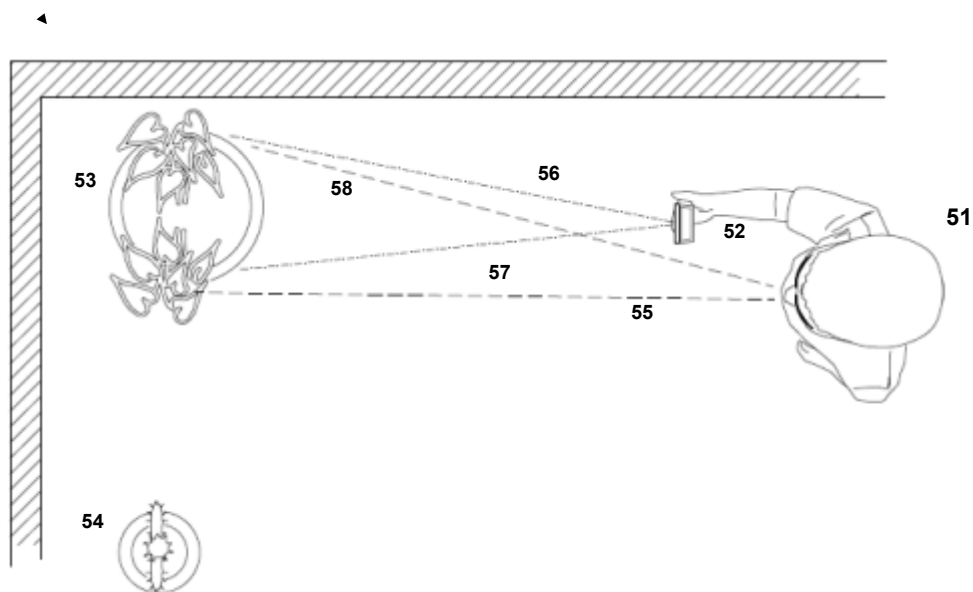


FIG. 5a

50d

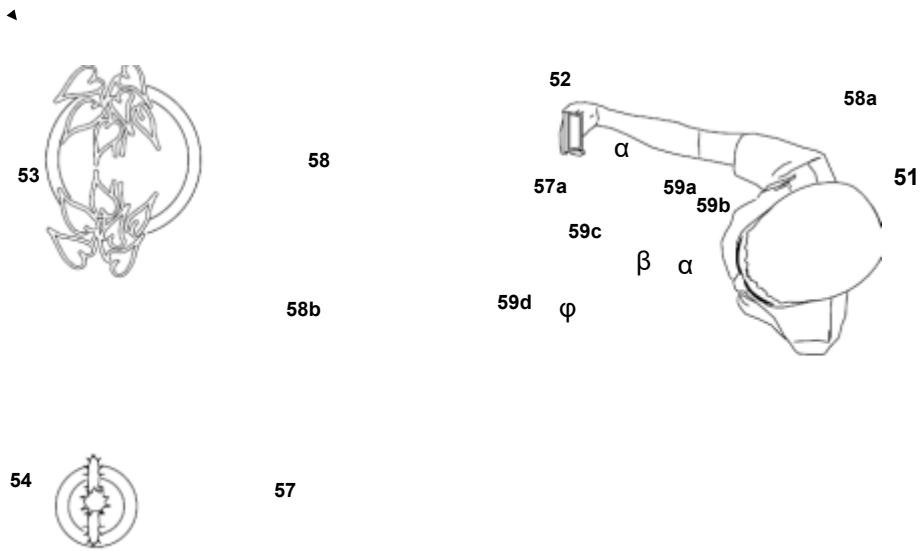


FIG. 5d

“Estimating and using relative head pose and camera field-of-view”

A digital camera is controlled based on estimation of a **user head pose** or gaze direction. The system comprises uses **two wearable devices** associated with right and left sides of the user body, each comprises an RF beacon. The head pose or gaze detection is estimated by **comparing the signal strength** (such as RSSI) or the phase **of the RF signals** from the wearable devices at the digital camera device. An angular deviation between the head pose (or gaze detection) and the digital camera (such as the line of sight) is estimated, and the digital camera is activated or controlled based on comparing the angular deviation to a set threshold.

40a

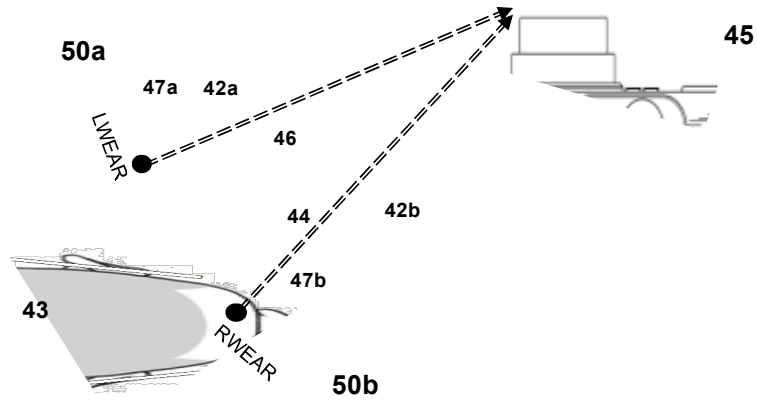


FIG. 4a

40b

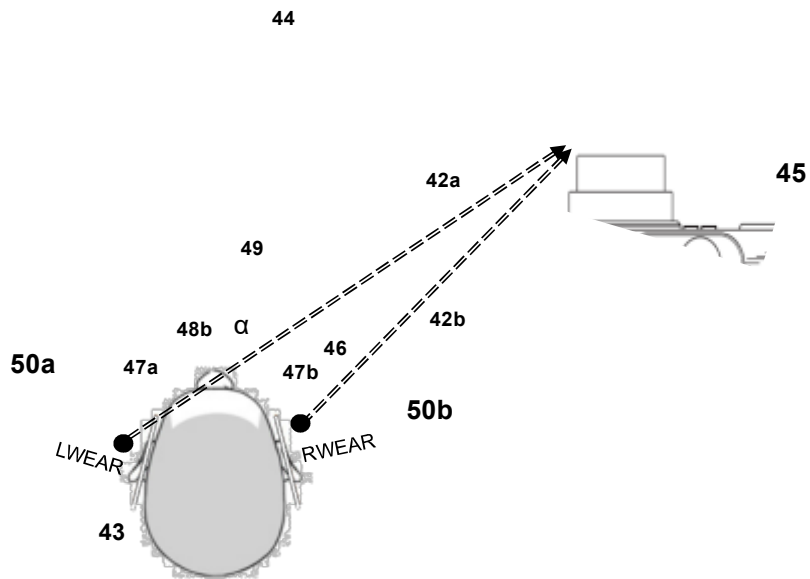


FIG. 4b

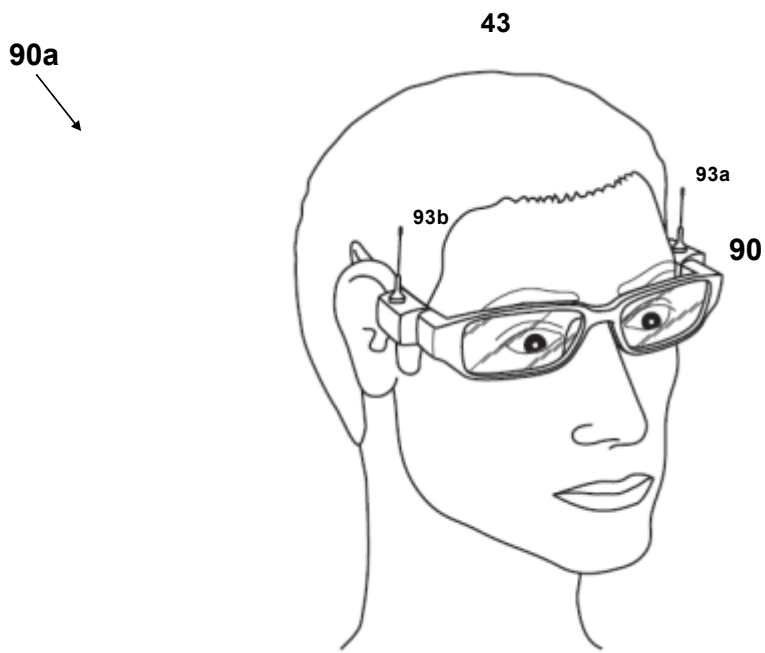


FIG. 9a

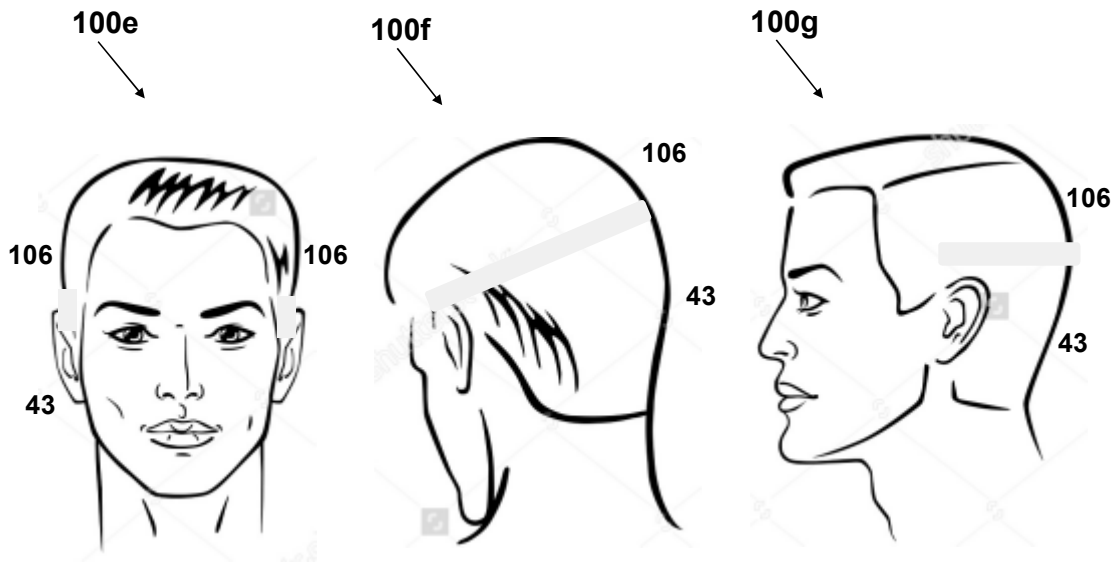


FIG. 10e