A Smart Device to Collect Breath Data in Real-Life Situations

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BACKGROUND

- R&D in breath VOC-based medical devices for diabetes and other diseases have recently seen an exponential growth.
- Advances in machine learning (ML) and artificial intelligence (AI) has enabled complex sensor pattern based recognitions and classifications.
- There is a for a sensor device that allows a large scale breath data collection from patients in real-life situations.

DEVICE FEATURES

- A small form-factor (hand-held), can take breath input, record sensor readings, and transmit data to the cloud.
- Has three slots for VOC sensors (which can be expanded as needed), sensor interface that can be programmed to match the sensor characteristics, and a program for an automatic sensor calibration.
- Programmable to optimize data format and send it to the cloud for automatic logging on cloud databases.
- Can be reprogrammed with trained algorithms for real time classification of a patient's breath and make predictions for verifications or to use a monitoring/ diagnostic device without any hardware modifications.
- Rechargeable, 4G data connection
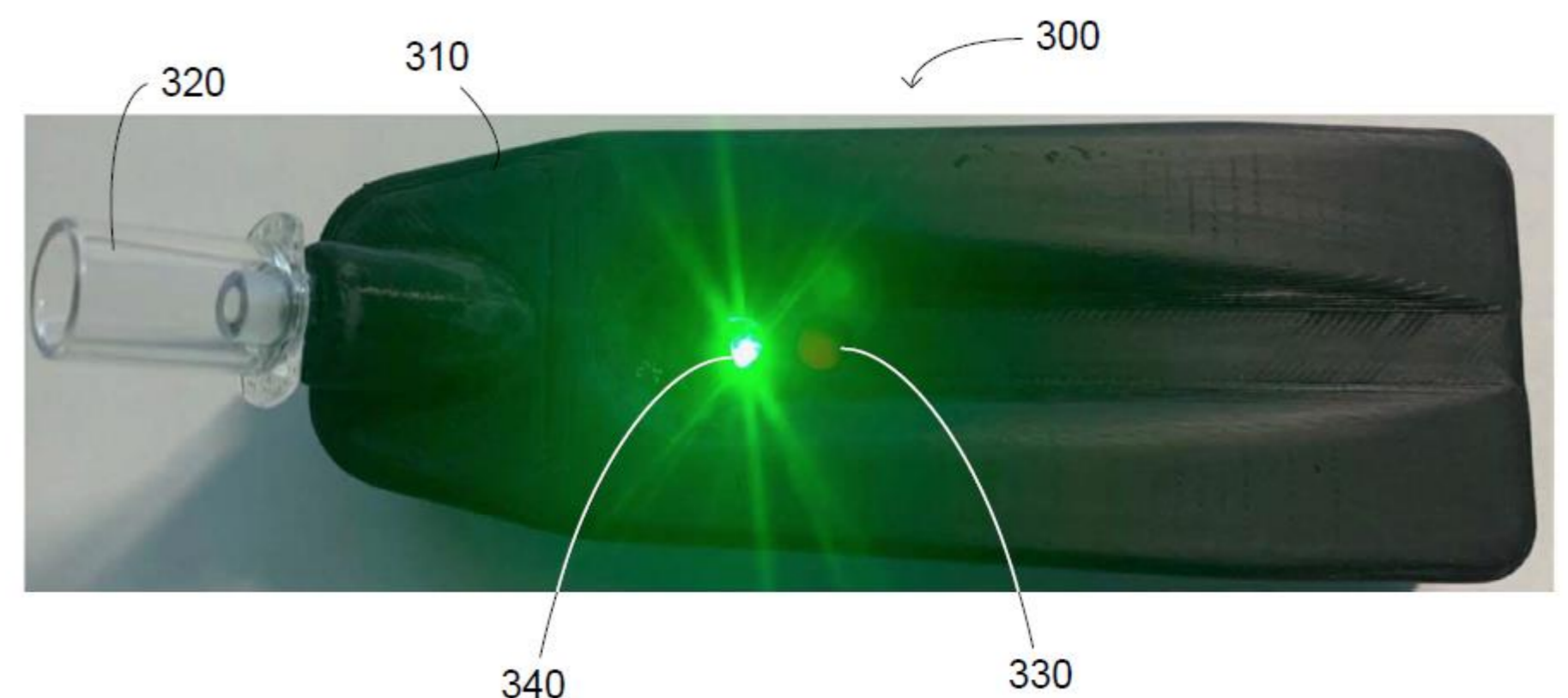
300: Hand-held Smart Breath Data Collection Device (patent pending), 310: Device Housing, 320: Mouthpiece, 330: Input Button, 340: LED Indicator

TEST METHOD

- The device is easy to use and can be given to the patients for a self in-home breath data collection or test.

APPLICATIONS

- Large-scale breath VOC sensor data collection for ML and AI based research.
- In-home and real-life situations breath data collection.
- Large-scale and in-home test and verification of trained ML and AI models.
- Breath VOC based disease diagnosis or health monitoring, VOC-based environment, buildings or infrastructure monitoring.