Boracle: The Oracle for Your Body

ARCS — Autonomy Research Center for STEAHM

Improving Social Medicine with Autonomy

Boracle Data Pipeline diagram: Boracle Marketplace (Promote supported devices), End User, Device 1, Device n, 3rd party app developer, Middleman Mobile App (Data Collection, Data Sync), Boracle Platform APIs (Store Sensor Data, Access Data Request, Access Data Analysis), Boracle Platform Microservices (Sensor Data Processing, Sensor Data Transformation, Clean Sensor Data Storage, Intelligent Data Analysis), Raw Data DB, Clean Data DB.

Wearable devices diagram: Smart Glasses, Smart Watch, Smart Shirt, SGPS/GPRS Body Control, Bluetooth Key Tracker, Smart Shoes, Smart Socks, Smart Pants, Smart Belt, Smart Ring, Smart Finger, Smart Bracelet.

Synopsis

- Use benefits of wearable technology to advance healthcare.
- Decouple sensor data from smart wearables for faster innovation.
- Boracle Platform shares standardized wearable data to 3rd parties.
- Boracle Marketplace pairs users to wearable devices.
- Intelligent Algorithms detect healthcare conditions using ML models.

Research Objective

- Create a system to collect wearable data from all devices.
- Process sensor data into standardized data formats.
- Share data and analysis results securely to 3rd party app developers.
- Enable user control of his/her own data.
- Help users discover smart devices that are right for them.
- Develop healthcare algorithms using data from wearable technology.

Research Approach

- Decouple sensor data from devices for device and healthcare innovation.
- Build Boracle Platform to process, store, and share data securely.
- IRB application to collect data from student athletes using Apple Watches.
- Train ML models on data for sleep, injury detection and prevention.

Research Results and Products

- **Boracle Platform:** data pipeline for wearable technology
- **Boracle Marketplace:** web application showing smart devices
- **Intelligent Algorithms:** 93% accuracy detect heart arrhythmias (public data)

Commercialization and/or Societal Impact Opportunities

- **Application:** Wearable data pipeline with mobile app interface.
- **Key Values:** Easily access and share health data created by wearable tech.
- **Potential users:** Anyone with a smart wearable device!

Team Names & Collaborators

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Citations

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