HearBoi

Team Totally Bad-Ass Designers

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Our Project

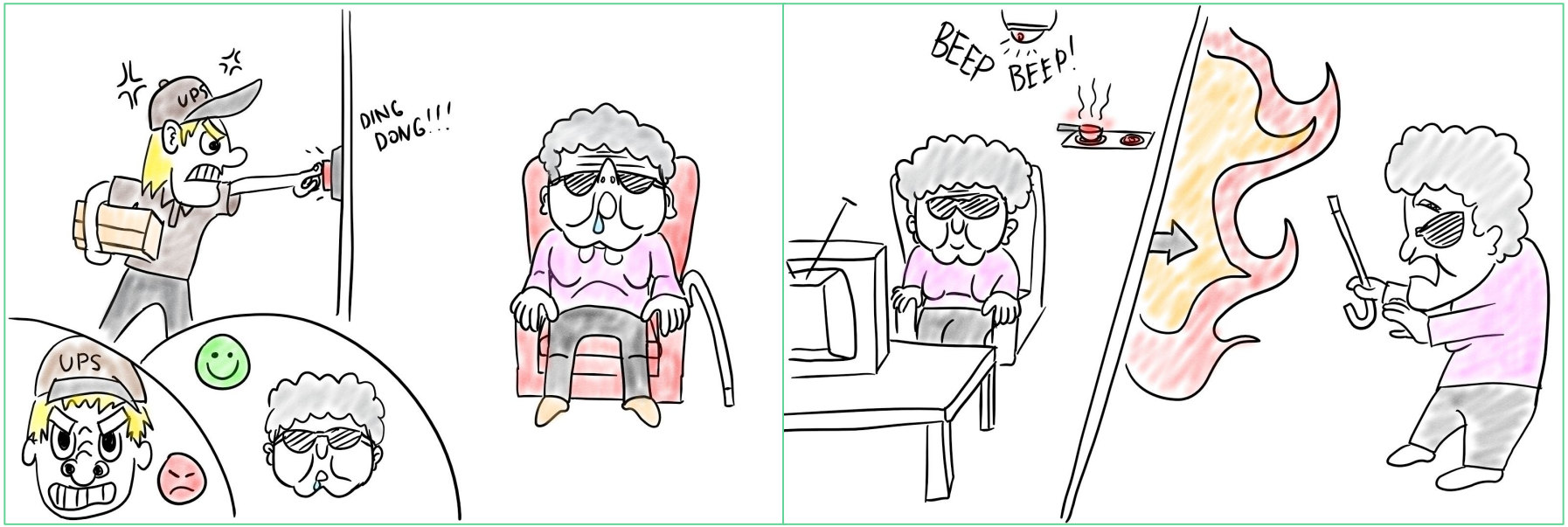
- Design and implement a **smart sound monitor** that can simplify users lives by identifying various sound sources within their house and notify them through their mobile phone
- **Target users**: People who are deaf or hearing impaired

Key Tasks

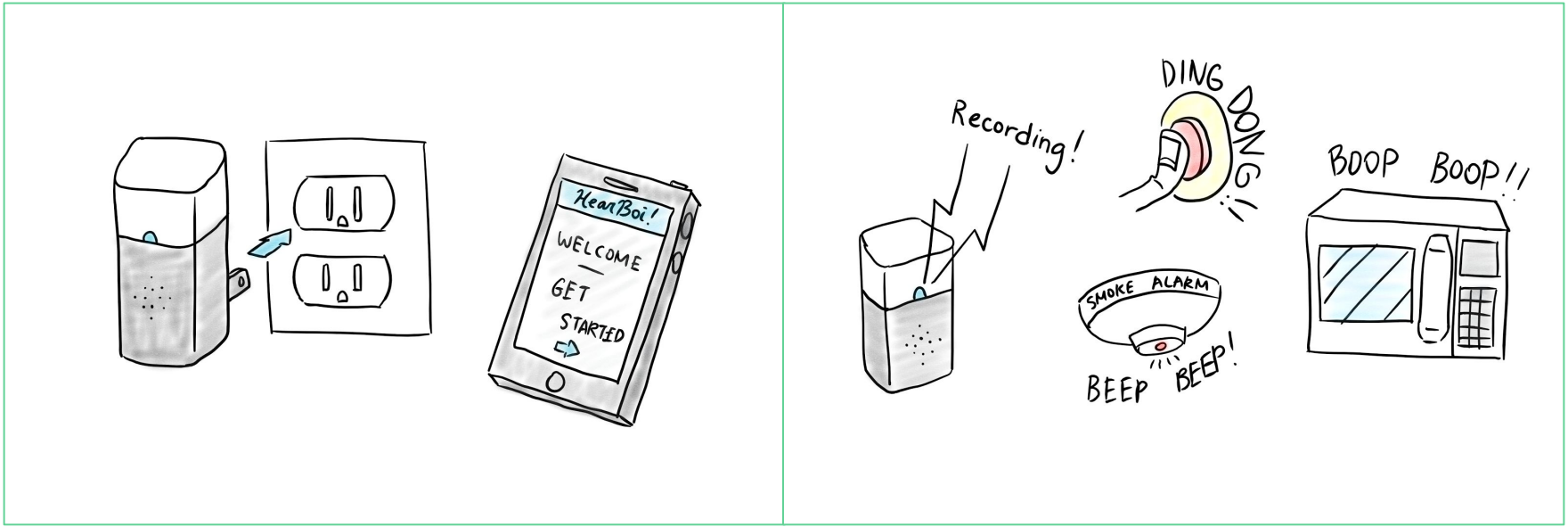
Design and implement a **smart sound monitor** that can:

- Allow users to **pre-record** any constant sound and detect any future rings through audio signal comparison
- Identify specific sound sources and alert you through texts sent to your phone
- Be placed near any audio source in a home
- Example sound sources: doorbell, fire alarm, telephone rings

Storyboarding



Storyboarding



Storyboarding

Implementation

The hardware implementation:

- Raspberry Pi
- USB microphone

The software implementation:

- Board sends HTTP request to server
- Back end code receives request, alerts user via SMS
- Front end used to register and configure device online, similar to Fitbit
- Sound detection and audio processing based on DejaVu, a Python algorithm

User Interface

- Low-fidelity prototype of user interface for our webserver app: https://www.figma.com/file/EEMeOUmfBhi8CntX4Viv9swB/HearBoi-UI
- Our current web app can be found here: http://ec2-54-71-180-108.us-west-2.compute.amazonaws.com/hearboi
- Ultimately, the web server app will be the only platform that users will need to interact with, allowing them to record sounds, organize devices, and customize notification settings.

The Web App

- **CodeIgniter**, a PHP-based Model View Controller framework inspired by Ruby on Rails
- Data is stored in a **MySQL database**
- Both the database and the code are running on Amazon Web Services
- Two REST APIs - one to **control audio recording** and upload/download on between the server and device, and one to handle **SMS notifications**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