An extension to our ears

**Problem**
While existing assistive hearing devices are affordable, the cost of buying multiple devices adds up very quickly. There is also the issue of portability: it’s inconvenient to lug around multiple devices when staying in a different location.

**Target User Group**
People who are deaf or hard of hearing, especially those who live alone in their homes or travel a lot.

This was our initial welcome screen. The basic functionality exists, but it felt very unpolished.

**Solution**
A mobile application that can be trained to recognize all important sounds and alert them to the user through vibrations and colorful notifications. It’s portable, affordable, and it serves the purpose of assistive hearing devices.

**Design Evolution**
- Global notification settings were replaced by settings for each individual sound.
- Sound detection algorithm evolved from using percussion detectors to convolution analysis.
- The UI and color scheme were updated to create a more cohesive, lively feel.

These two pictures of our initial prototypes show how we iterated our design through user feedback.

**Final Prototype**
When turned on, Knock Knock will listen for important sounds and alert the user to significant events through vibrations, notifications, and colorful alerts. Users can also train custom sounds, and set notification settings for each individual sound in their library.

**Future Work**
For the future, we plan to implement visual feedback during the sound recording. We also intend on improving the detection algorithm to reduce the amount of false-positives.

These are pictures of the welcome screen and settings page of our final prototype.