PEOPLE COUNTER

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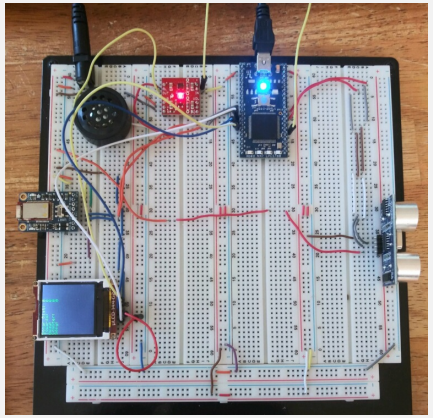
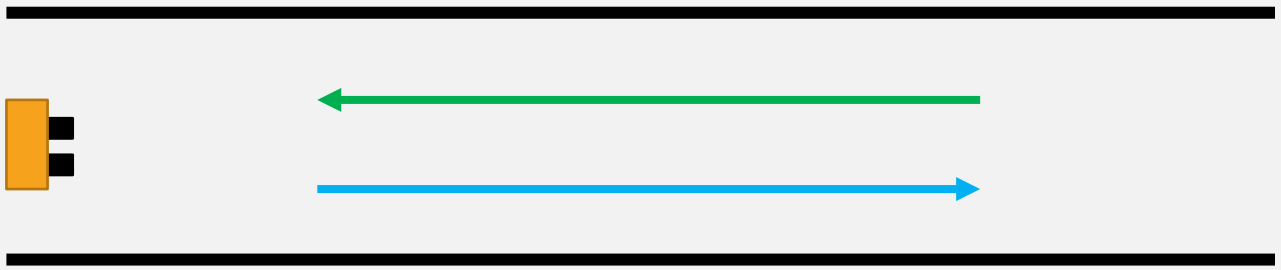
PROJECT OVERVIEW

We created a device to track the usage of a hallway. Using one sonar sensor it tracks how many people have walked in the hallway and which direction they were going. This information could be used by companies to keep track of what areas of a building are used more often while not collecting user data. It is an accurate and anonymous data collection method.





The sonar would be mounted on the wall at the end of a hallway and count how many individuals are walking towards it and away from it

Wiki: https://os.mbed.com/teams/People-Counter/wiki/People-counter

HARDWARE

- Mbed
- 5V External Power Adapter
- Sonar (HC-SR04)
  - Use 5 values in order to make sure there is no bad data
  - When the hallway is empty the sonar returns an out of range value of 0 mm
- Bluetooth (Adafruit Bluefruit LE UART Friend)
- uLCD
- Amplifier and speaker (TPA2005D1)

DEMO

- Video located on the wiki (a hand was used in place of an individual, but the unit was tested with people)
- LCD data:
  - the current sonar distance value in millimeters
  - # of individuals that walked towards
  - # of individuals that walked away
  - Total # of individuals
  - ‘song’ chosen
- The Bluetooth can raise and lower the volume (up and down) and select 4 different sound options (1-4)
  - 1: no sound
  - 2-4: different short notes (using SongPlayer)
- The speaker plays a short sound every time one of the counters increment

IMPROVEMENTS/CORONAVIRUS IMPACT

- Stream the data over a serial connection to a Raspberry Pi that would host a webpage with visuals
- 2nd sensor (sonar or TOF) for greater accuracy
- Add an SD card reader, so that the sounds can be easily changed and the the information collected can be saved between power cycles.
  - The SD card reader we had was not working

- Due to working remotely, some aspects of our design had to be simplified and altered to match the parts we had available.