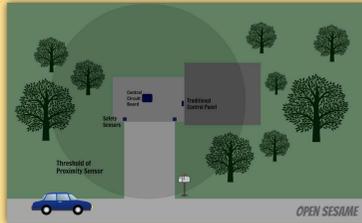# Open Sesame

Inspired by the increasing use of garages as the main point of entry for homes, this project aims to bring functioning but outdated products into the age of instant information.
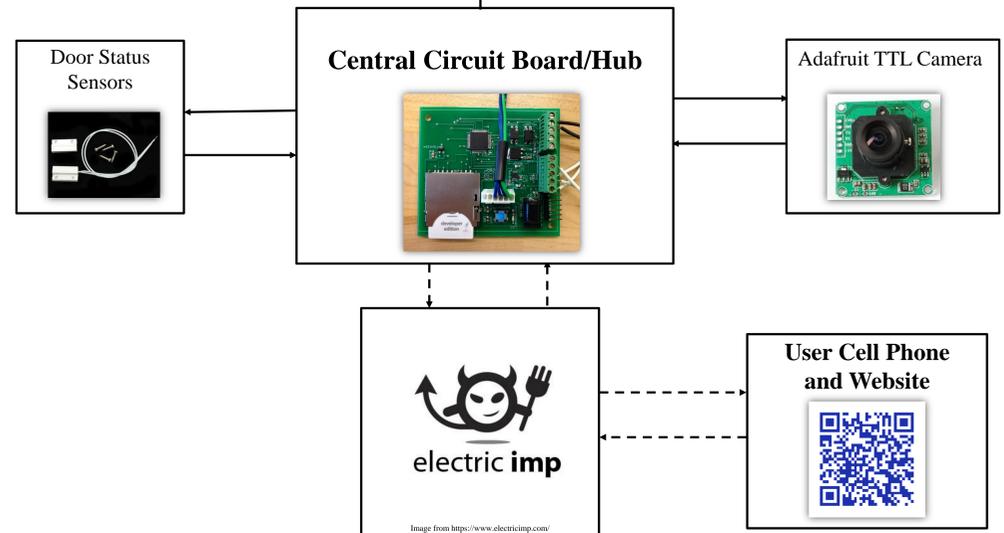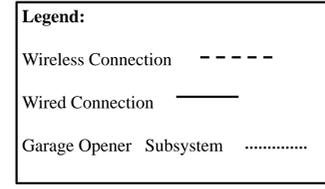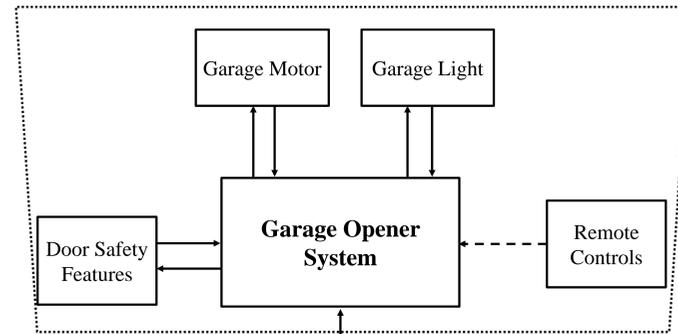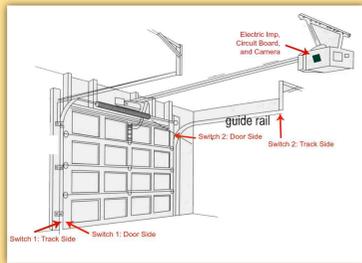
Angela Savela, Jane McGuinness, Veronica Martinez, Denise Garcia, Ka Hin Lee

The Problem: Garages are the main point of entry for many people and pose a vital security threat if opened without a homeowner's knowledge.
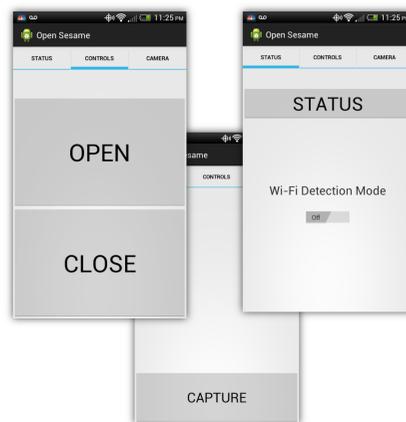
Solution: Allow a user to monitor their garage door in real-time through their smart phone. This is done by interfacing with their existing garage door, and using their cell phone as an additional remote.

Additional Features: Through the smart phone application, a command to take a picture can be sent, and the user can receive visual confirmation to aid their peace of mind. By turning on Wi-Fi Detection mode, when entering or existing their home network the app sends commands to the system to open or close the door as appropriate.
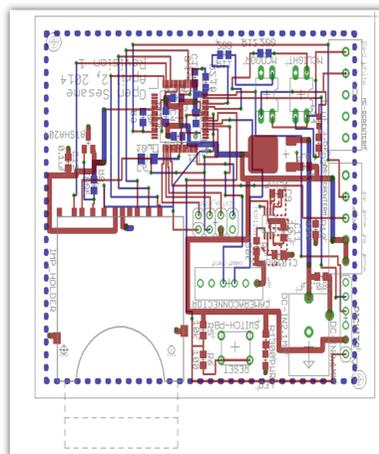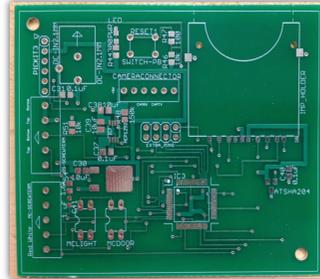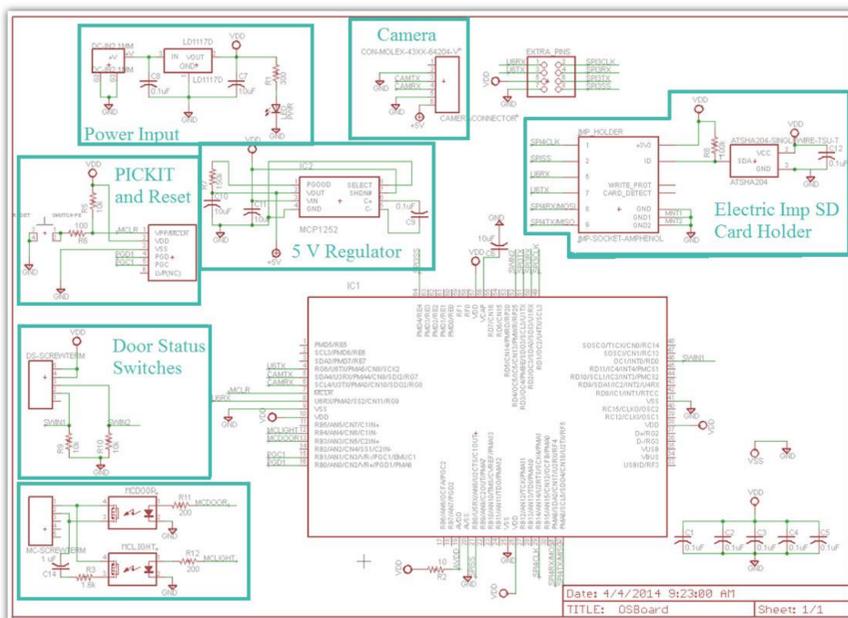
Android Application

The Open Sesame Android application is the source of communication between the user and the Electric Imp, and by extension the garage door. Based on the current state of the garage door, and the selected inputs, the microcontroller will perform appropriately and send a signal to the garage door. As long as the user's mobile device has connection to the internet, the application will be able establish two-way communication to the Electric Imp Cloud. The application satisfies the criteria of giving the user maximum control over their garage door from a remote location. Features in the application include: status checking, open/closing the garage door, capturing a picture of the garage door, and Wi-Fi detection mode.
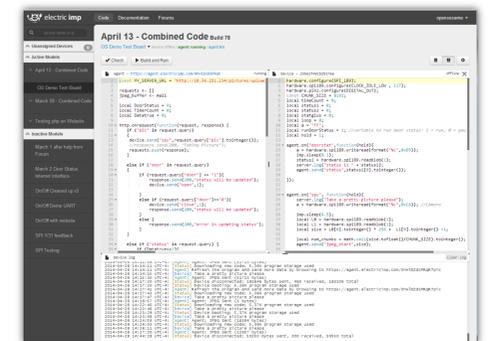
A closer look at the circuitry…

Legend:

Wireless Connection	– – – –
Wired Connection	———
Garage Opener Subsystem	·············

Motor:

The garage door motor is hardwired directly to the microcontroller on the circuit board. The microcontroller receives a signal from the electric imp to toggle the light or the garage door, and the signal is wired to the motor. Therefore, if the door is already closed and the imp signal to the microcontroller is high then it is sent to the motor which pulls the door open, and vice versa.

Electric Imp

At the center of all communication in this system is the Electric Imp. The size of a typical SD card, in addition to hosting and carrying out code, this device has the ability to interface with the internet using the Electric Imp cloud. Additionally, using a PHP request, the Imp can post a picture on a server.