This system monitors several appliances in a person’s home. The framework is setup to be easily expandable for any future modifications. Two systems are currently supported.

- Lighting control
- Washer and Dryer notifications

Most home automation systems typically include lights or door locks. I have not seen many systems that include a washer and dryer controllers. The controller for the washer and dryer use magnets as to attach to any type of washing machine.

Communication

433 MHz RF system used to communicate with other devices. Input signal would randomly toggle if left alone. A transmission protocol was used to stabilize the system before sending data. Each bit has a low and high value sent to make the transmission a non-constant value for long streams of all 1’s or 0’s

Challenges

The application and server API require a high-level language like Java, which is uncommon for electrical engineering. There was a slight learning curve to use Java in the application.

Developing a communication system that could run in both Java and C proved to be difficult. In C, I can interface directly with the chip, while in Java I needed to use libraries to interface with the chip.

Looking Forward

This system can be expanded and various features can be added such as door lock control and garage door control/status.

It is possible to add sound system control, but would be more difficult as the vendor of the sound system would need a way to interface with the home automation system.