Introduction

Smart Home is an act of using devices and programming through a network to control basic home functions for better quality living. It reduces human interaction as much as technically possible and replacing them with programmed electronic systems. This designed smart home system aims to improve the living quality of the hall residents, it includes various features for security, entertainment and appliances surveillance.

- Notification for door status
- Door triggered video playback
- Auto playlist update through YouTube
- Smart lighting system
- Laundry / bathroom detection
- System control web interface

System Design

The system is built around a Raspberry Pi 3, which is the system main controller. The Pi is attached with power supply, display, various hardware and sensors. Python codes are used to control the attached devices and communicates with the Pi. Information on laundry and bathroom detection is collected by dual-axis accelerometer (vibration detection) and magnetic reed switch on the bathroom doors. An Arduino UNO will handle the information and sends it to the Pi before transfer to the hosting server. Users will be able to monitor the occupancy status on the web page.