Objective

- Design an Enterprise-based Automation system that will provide centralized control and monitoring of devices virtually from anywhere.

Introduction

- EZ-Access introduces a simple and secure way for students and faculty at Rutgers to control the environment around them.
- From opening locked doors, to controlling the temperature, to altering students, EZ-Access provides a way for one to become more in charge of their Rutgers Experience with any mobile device.
- The Users communicate with the server through either wired Rutgers Network or RU-Wireless. The main controllers have been provided with static IP’s, which allows them to be connected directly to the Rutgers Network.
- The Main controllers communicate to the server via Rutgers network, and communicate with their attached devices via Zig-Bee.

System Architecture

- Users have the option of accessing our system through either our desktop website, or our mobile site, which can access devices through a QR-code.
- Through the use of multiple centralized servers, we are able to make an Ez-Access network, which has the capability of handling the whole universit*

Security

- LDAP Authentication
- Session Management for all websites, which prevents access to vital information
- SQL injection prevention measures
- All packets between main controller and server encrypted using AES encryption
- Zigbee packets encrypted using DES
- Users assigned privileges based on university roles

Framework

Hardware
- Arduino Mega/Uno Microcontroller
- Zbee Radios

Software
- PHP
- MySQL
- HTML/CSS

Development Tools
- Netbeans
- Adobe Dreamweaver
- Arduino Environment

Enhancements

- QR-Codes located at each automation device, redirects user to mobile site.
- Sites have ability to store passwords.
- Guest Twitter Access
- Supervisors have ability to assign permission to other users.
- Main Controller regularly updates devices status, and relays info to server.