Senior Projects 2018

1. **Trinity College Fire fighting robot 2018.**

   This project requires the student to design and build an autonomous vehicle capable of competing in the 2018 fire fighting robot contest held annually at Trinity College in Hartford Connecticut. The contest rules can be found at:

   http://www.trincoll.edu/events/robot/rules.html

   Each year slight variations are added to the rules to vary the competition and to add complexity.

2. **IEEE Southeast Con Hardware Competition 2018.**

   This project requires the student to design and build an autonomous vehicle capable of competing in the 2018 South East Hardware Competition. This is an annual competition that is hosted by a different host school each year. The competition itself also change each year usually based on a theme or geographical area. The 2018 competition will be held in Florida. The preliminary rules for the 2018 competition will be available at the completion of the South East Con 2018 convention.

6. **Animal Feeder**

   The purpose of this project is to create a dry dog/cat food feeder that can be programmed and monitored via WIFI. The feeder should include settings for the number of times per day to feed the animal, and the quantity in cups. In addition the feeder should use a network source to up its internal clock. This is to insure that animal will be fed at the correct time (with or without Internet support). The feeder should also include features to alarm the owner when the food level is low, or there has been some type of failure. This warning must be local IE. Led or LCD and remote IE email or text.

7. **Home automation and security**

   For this project I would like to have a home automation system that will be capable of using Amazon Alexa to control lights, switches, outlets, Furnace, AC, and other parts of the home. For the project you would use zigbee mesh technology as the backbone of the project. Different sensors and controls would then be connected back to a main hub, which would then communicate via internet back to Alexa.

The hub would be created using a Raspberry Pi and most likely programmed in c++ or Python to communicate to with the zigbee device. To work with Alexa I believe you will need to write a Python script that will use IFTTT to configure Alexa to talk to the PI.