Smart Home Appliance Control System   (SHACS)

General Description:

The goal of this control system is to be able to access and control everyday home appliances without actually having to get up and turn them on and off etc… The way to accomplish this feat is through a touch screen device that will control the inputs of the whole system. These inputs will then be sent, wirelessly, to the appliance control part of the system that will select the proper appliance and control it, based on the input commands that it was given.

Features:

- Be able to send inputs through a display using touchscreen technology
- Use of wireless modules to send and receive data from microcontroller
- Use of STM32F4-Discovery with TFT LCD
- Use of four STM32F3-DISCOVERY Boards
    - sending desired inputs to wireless module
    - receiving inputs from wireless module and send to desired appliances
- Be able to turn on/off/dim a light bulb
    - Night time mode using PIR sensor to detect movement and activate light.
- Be able to shut/open blinds
    - User mode: User input determines whether or not blinds should be open or shut.
    - Automated mode where sensor decides to open or shut blinds.
- Be able to control thermostat
    - Displays temperature and humidity
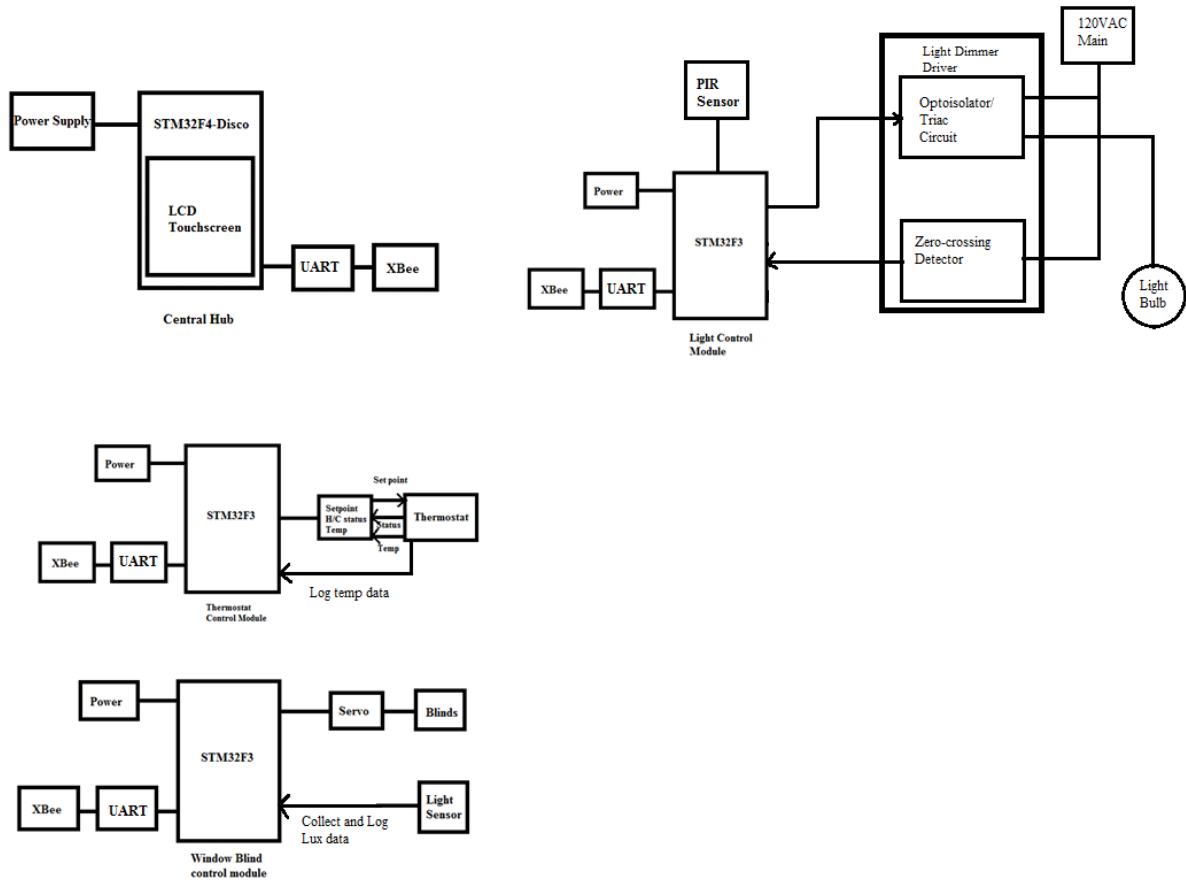   - Displays current status of thermostat and set point

Block Diagram:

Figure 1 - From Top Left to Bottom right: Main Control Module, Light Control Module, Thermostat Control Module, and Window Blind Control Module