Smart Home

**Key Components:-**

1. Bluetooth Device (HC -05) & Application (Android, IOS and Windows).
2. RF module master and slave (CC2500 form TI).
3. Microcontroller for Master (STM32F0) and Slave (STM8L).
4. Other Hardware circuits :

(a)Relay driver circuits.

(b) //Current Transformer for feedback (optional).

(c)Supply circuits (230V AC to required DC).

**Functionalities:**

Smart home is a project which is providing ease of access to the control the device of home remotely as well as manually.

Smart home comes with the two remote and also manual controls.

Remote control includes Bluetooth (Personal Mobile) and RF for operation.

**Operation of Bluetooth Controls:**

Bluetooth device contains HC-05 module at the receiver end where switching is to be done by relays.

Each Module have a unique MAC address, so every application mapped with that MAC address can only access controls.

Receiver has an indication for the communication with the remote device and also for the current status of the device.

**Operation of RF Controls:**

RF device contain s CC2500 modules from TI.

RF module at remote device (STM8L) works as a transmitter and RF module with the Bluetooth device acts as a receiver.

Transmitter is only able to initiate communication and receiver receives it and process it also sends the Acknowledge for the same.

Each device has a unique ID for security.

**Other hardware circuitry:**

After getting the inputs from the remote controller, receiver controller sends the signal to the Ex OR gate, where other I/P is from manual switch.

Hardware should be in modular design.

The modules would be as follows,

1. Main board for wireless communication using Bluetooth & CC2500.
2. Switching and Ex-OR Board with AC to DC conversion using 2 different 7805 ICs
3. Sensing circuit of AC mains which works on 3.6/3.3/3.0V.
4. LED and Switch board Design. LEDs will be connected to sensing block using 1 leg and other leg will be connected to main board’s HI/LOW pin.

**Note:** switch wiring must be imp for this functionalities and it should be toggle switch.