Smart Home Project

- In this project we have two microcontrollers each wants to communicate with each other using SPI protocol as one of them is the Master and the other is the Slave.

- **Transferring data is done by two stages**

1- Bluetooth module send Data to first Microcontroller (Master MC) using USART

2- Master MC send the data To the Slave MC using SPI

   After transferring data to the slave :

   Actions can be taken on the actuators which is

   The led can be on or off according to the conditions done in the code.

DATA	LED1	LED2
0	ON	Remains as it is
1	Remains as it is	ON
2	ON	ON
3	OFF	OFF
4	OFF	Remains as it is
5	Remains as it is	OFF

```
                              start

                                              ── No ──┐
                                                      │
                        Is the data sent to the
                ┌── Yes Master ?
                │
                ▼
          send data to
          the slave
                │          ── No ──┐
                │                  │
                └──────────►  is the Data sent to    ── Yes ──┐
                              the slave ?                      │
                                                               ▼
                                              is the Data =0?  ── Yes ──►  LED1 ON
                                      ── No ──┤
                                              ▼
                                        is the Data =1?   ── Yes ──►  LED 2 ON
                              ── No ──┤
                                      ▼
                                is the Data =2 ?   ── Yes ──►  LED 1 & LED 2 ON
                      ── No ──┤
                              ▼
                        is the Data =3 ?   ── Yes ──►  LED 1 & LED 2 OFF
              ── No ──┤
                      ▼
                is the Data =4 ?   ── Yes ──►  LED 1 OFF
        ── No ──┤
                ▼
          is the Data =5?   ── Yes ──►  LED 2 OFF
```