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**IoT Training Assignment Two**

Design clear schematic diagrams for your projects identifying all necessary devices and modules required.

identify all the required libraries and APIs for your modules to function according to the desired functionality.

Schematic Diagram for SMART HOME SECURITY SYSTEM.

**Design road map**

**1. Main Control Unit (MC**U)

- Microcontroller (e.g., Arduino, Raspberry Pi)

**2. Sensors**

- Motion Sensors (PIR, Microwave Sensors)

- Door/Window Contact Sensors

(Reed Switches)

- Glass Break Sensors (Acoustic/Vibration Sensors)

- Cameras(IP Cameras, CCTV)

**3. Communication Modules**

- Wi-Fi Module(ESP8266, ESP32)

- Zigbee Module (XBee)

- Bluetooth Module\*(HC-05, HC-06)

**4. Alarm System**

- Siren/Buzzer

- LED Indicators

**5. Power Supply**

- Battery (with charging module)

- AC to DC Adapter

**6. User Interface**

- Smartphone App

-Web Dashboard

**QUESTION 2. Required Libraries and APIs for SMART HOME SECURITY SYSTEM ;**

**1. Microcontroller Libraries**

- Arduino IDE Libraries (e.g Servo.h, Wire.h, WiFi.h for Arduino)

- Python Libraries for Raspberry Pi (e.g., `RPi.GPIO`, `picamera`, `requests`)

**2. Sensor Libraries**

- PIR Sensor (`Adafruit\_PIR.h`)

- Camera Modules (`ESP32-Camera` for ESP32)

- Reed Switch (`DigitalInputPullup.h`)

**3. Communication Libraries**

- Wi-Fi Libraries (`WiFiClient.h`, `ESP8266WiFi.h`)

- Zigbee Libraries (`XBee.h`)

- Bluetooth Libraries (`SoftwareSerial.h`)

**4. Cloud Services APIs**

- Firebase (`FirebaseESP8266.h`)

- Blynk (`BlynkSimpleEsp8266.h`)

- IFTTT (`IFTTTWebhook.h`)

**5. User Interface Libraries**

- Flutter for Mobile Apps

- React for Web Dashboard