



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with
'A++' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University,
Chennai



DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECT213- IoT SYSTEM ARCHITECTURE

II ECE / IV SEMESTER

UNIT 3 – Actuators and IoT Networking devices

Interfacing GSM Modem



GSM :

- GSM, which stands for Global System for Mobile Communications, is a digital mobile telephony system that was initially introduced as a second-generation (2G) standard.
- It revolutionized the world of mobile communication by providing a standardized platform for voice calls, SMS (Short Message Service), and later data services like GPRS (General Packet Radio Service) and EDGE (Enhanced Data rates for GSM Evolution).

Features of GSM:

- Digital transmission
- Frequency reuse
- Roaming and interoperability
- Security
- Modular Architecture

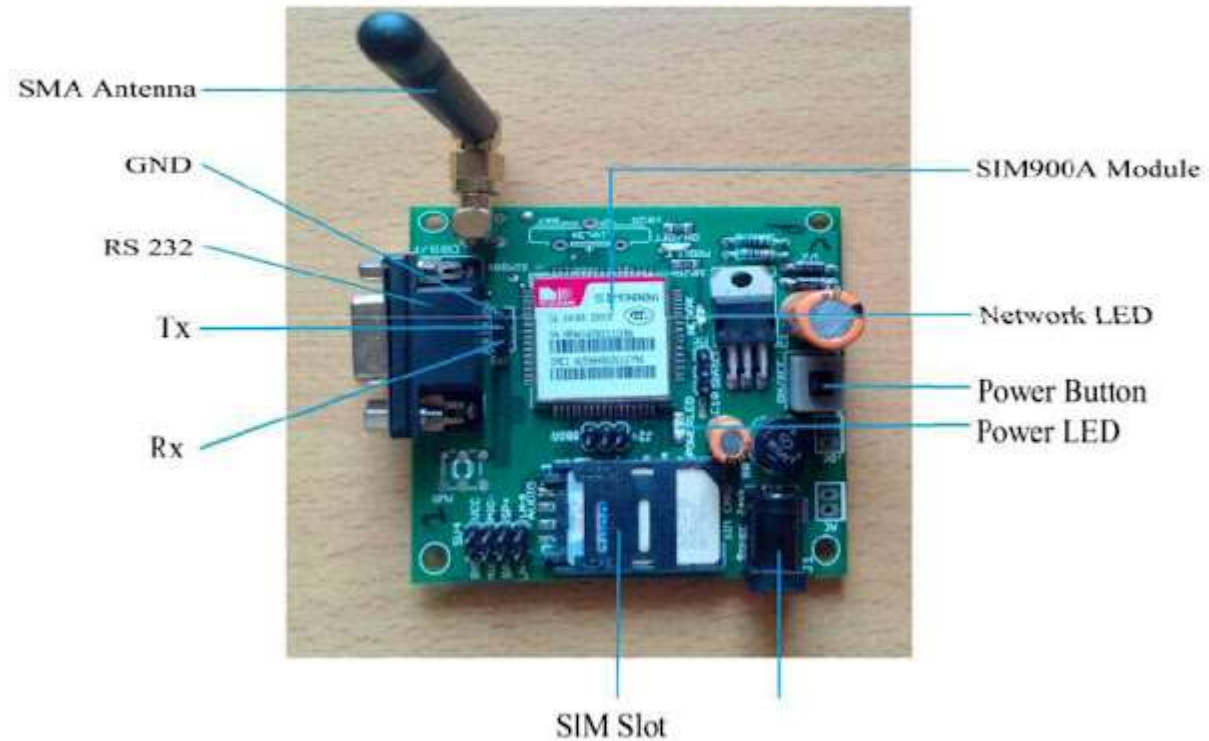


Components required:

- Arduino Board
- GSM Modem (e.g., SIM900, SIM800)
- SIM Card
- Connecting Wires
- Breadboard (optional)



GSM MODEM





Interfacing steps:

1. Hardware Connections:

Power Connections: Connect the GSM modem's VCC (power) and GND (ground) pins to the Arduino's 5V and GND pins, respectively.

Serial Communication: Establish a serial communication link between the GSM modem and Arduino. Connect the GSM modem's TX (transmit) pin to Arduino's RX (receive) pin and the GSM modem's RX pin to Arduino's TX pin.

2. Software Setup:

Serial Communication: Use the Arduino Software Serial library to create a software-based serial port for communicating with the GSM modem, as most Arduino boards have only one hardware serial port.

AT Commands: The GSM modem is controlled using AT commands, which are simple instructions sent over the serial interface to perform various tasks like sending SMS, making calls, and more.

3. Arduino Code:

Write Arduino code to send AT commands to the GSM modem for various tasks. For example, to send an SMS, you would send AT commands to set the SMS mode, recipient number, and message content.



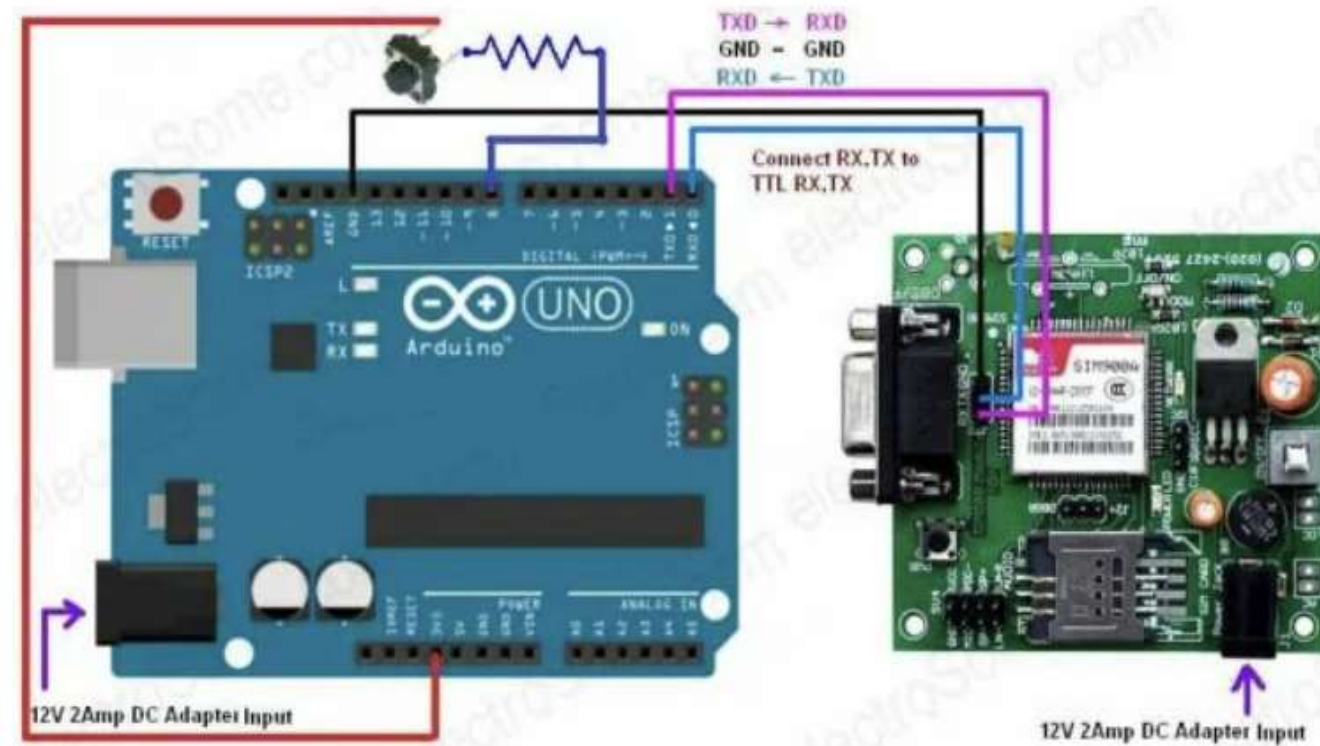
```
void setup()
{
    Serial.begin(9600); //Initialise serial to communicate with GSM
    Modem
}

void loop()
{
    delay(10000); //Give enough time for GSM to register on Network
    SendsSMS(); //Send one SMS
    while(1); //wait forever
}

void SendsSMS()
{
    Serial.println("AT+CMGF=1"); //To send SMS in Text Mode
    delay(1000);
    Serial.println("AT+CMGS=\"+9198xxxxxxx\"\\r"); //Change to destination
    phone number
    delay(1000);
    Serial.println("Hello from GSM Modem!"); //the content of the message
    delay(200);
    Serial.println((char)26); //the stopping character Ctrl+Z
    delay(1000);
}
```



Circuit Diagram



Interfacing GSM Modem with Arduino - Circuit Diagram