GPS TRACKER

Source Code

#include <LiquidCrystal.h>

#include <TinyGPS++.h>

#include <SoftwareSerial.h>

// Define the pins for the GPS module

#define GPS\_RX\_PIN 8

#define GPS\_TX\_PIN 9

// Define the pins for the GSM module

#define GSM\_RX\_PIN 10

#define GSM\_TX\_PIN 11

SoftwareSerial gpsSerial(GPS\_RX\_PIN, GPS\_TX\_PIN);

SoftwareSerial gsmSerial(GSM\_RX\_PIN, GSM\_TX\_PIN);

TinyGPSPlus gps;

LiquidCrystal lcd(2, 3, 4, 5, 6, 7);

void displayGPSData();

void sendLocationSMS();

void print2digits(int number);

void checkIncomingSMS();

void setup() {

  Serial.begin(9600);

  gpsSerial.begin(9600);

  gsmSerial.begin(9600);

  lcd.begin(16, 2);

  lcd.print("GPS Tracker");

  delay(1000);

}

void loop() {

  while (gpsSerial.available() > 0) {

    if (gps.encode(gpsSerial.read())) {

      displayGPSData();

      checkIncomingSMS();

      delay(30000); // Delay for 30 seconds before reading the next GPS data

    }

  }

  // Print "NO SIGNALS" if no GPS Signal Found

  if (gps.charsProcessed() < 10) {

    Serial.println("NO SIGNALS");

    delay(10000);

  }

}

void displayGPSData() {

  if (gps.location.isUpdated()) {

    double latitude = gps.location.lat();

    double longitude = gps.location.lng();

    // Printing on Serial Monitor

    Serial.print(" Latitude= ");

    Serial.print(latitude, 6);

    Serial.print(" Longitude= ");

    Serial.print(longitude, 6);

    Serial.print(" Date: ");

    print2digits(gps.date.month());

    Serial.print("/");

    print2digits(gps.date.day());

    Serial.print("/");

    Serial.print(gps.date.year());

    Serial.print("  Time: ");

    print2digits(gps.time.hour());

    Serial.print(":");

    print2digits(gps.time.minute());

    Serial.print(":");

    print2digits(gps.time.second());

    Serial.println();

    // Print Google Maps location link on serial monitor

    Serial.print("Google Maps Location: https://maps.google.com/?q=");

    Serial.print(gps.location.lat(), 6);

    Serial.print(",");

    Serial.println(gps.location.lng(), 6);

    // Number of satellites in use

    Serial.print("Number of satellites in use = ");

    Serial.println(gps.satellites.value());

    // Printing Latitude and Longitude on LCD Display

    lcd.clear();

    lcd.setCursor(0, 0);

    lcd.print("Latitude: " + String(latitude, 6));

    lcd.setCursor(0, 1);

    lcd.print("Longitude: " + String(longitude, 6));

    delay(10000); // Delay for 10 seconds before updating LCD again

  }

}

void checkIncomingSMS() {

  if (gsmSerial.available()) {

    String incomingSMS = gsmSerial.readStringUntil('\n');

    incomingSMS.trim();

    if (incomingSMS.indexOf("location") != -1) {

      sendLocationSMS();

    }

  }

}

void sendLocationSMS() {

  gsmSerial.println("AT+CMGF=1"); // Setting SMS mode to text

  delay(1000);

  gsmSerial.println("AT+CMGS=\"+91XXXXXXXXX\""); // Phone number

  delay(1000);

  gsmSerial.print("Location: ");

  gsmSerial.print(gps.location.lat(), 6);

  gsmSerial.print(", ");

  gsmSerial.print(gps.location.lng(), 6);

  gsmSerial.write(26);

  delay(10000); // Delay for 10 seconds

}

void print2digits(int number) {

  if (number >= 0 && number < 10) {

    Serial.print("0");

  }

  Serial.print(number);

}