Appendix

We used the following code in ARDUINO tutorial :

```
#include <SoftwareSerial.h>
#include <TinyGPS++.h>
int buttonpin=12;
float lattitude,longitude;
float a[2];
float *p;
SoftwareSerial gpsSerial(8,9);
SoftwareSerial gsmSerial(6,7);
TinyGPSPlus gps;
const int trigPin1 = 6;
const int echoPin1 = 5;
long duration1;
int distance1;
const int trigPin2 = 2;
const int echoPin2 = 4;
long duration2;
int distance2;
void setup() {
  // put your setup code here, to run once:
pinMode(trigPin1, OUTPUT);
pinMode(echoPin1, INPUT);
pinMode(3, OUTPUT);
Serial.begin(9600);
pinMode(trigPin2, OUTPUT);
pinMode(echoPin2, INPUT);
pinMode(buttonpin,INPUT) ;
Serial.begin(9600);

delay(1000);
gpsSerial.begin(9600);
delay(1000);
gsmSerial.begin(9600);
delay(1000);
Serial.print("—Tracking-");
Serial.print("***Location***");
gsmSerial.println("AT+CNMI=2,2,0,0,0");
delay(3000);
Serial.print("Initializing.....");
delay(2000);
Serial.print("System Ready  ");
delay(1000);
}
void loop() {
  // put your main code here, to run repeatedly:
  digitalWrite(trigPin1,LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin1,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin1,LOW);
duration1 = pulseIn(echoPin1, HIGH);
distance1= duration1*0.034/2;
Serial.print("Distance1: ");
```

```
Serial.println(distance1);
 digitalWrite(trigPin2,LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin2,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin2,LOW);
duration2 = pulseIn(echoPin2, HIGH);
distance2= duration2*0.034/2;
Serial.print("Distance2: ");
Serial.println(distance2);
if (distance1<=20||distance2<=20){
tone(3,1000);
delay(1000);
noTone(3);
tone (3,1000);
delay(1000);
noTone (3);
tone(3,1000);
delay(1000);
noTone (3);
}
else if (distance1<=15||distance2<=15){
tone (3,500);
delay(500);
tone(3,500);
delay(500);

noTone(3);
tone(3,500);
delay(500);
noTone(3);
}
else{
noTone(3);
int sensorValue = digitalRead(A4);
if (sensorValue==1){
  tone(3,1500);
delay(1500);
noTone(3);
tone(3, HIGH);
delay(1500);
}
else{
noTone(3);
  if(digitalRead(buttonpin)==HIGH)
  {
    Serial.println("button pressed");
    delay(2000);
    SendMessage();}
  }
  }
 if (gsmSerial.available()>0)
 Serial.write(gsmSerial.read());
  while(gsmSerial.available())
```

```
  {
  gsmSerial.read();
  }
  while(Serial.available())
  {
   Serial.read();
  }
 get_gsm();
  }
float *get_gps()
{
   gpsSerial.listen();
   Serial.println("INSIDE get_gps");
   while(1)
  {
   while (gpsSerial.available() > 0)
   { gps.encode(gpsSerial.read()); }
      if (gps.location.isUpdated())
      {
       Serial.print("LAT=");  Serial.println(gps.location.lat(), 6);
       Serial.print("LONG="); Serial.println(gps.location.lng(), 6);
       lattitude=gps.location.lat();
       longitude=gps.location.lng();
      break;
      }
}
a[0]=lattitude;
a[1]=longitude;

     delay(1000);
    }
   }
 }
void SendMessage()
{
  gsmSerial.println("AT+CMGF=1");
  //Sets the GSM Module in Text Mode
  delay(1000);
  // Delay of 1000 milli seconds or 1 second
 gsmSerial.println("AT+CMGS=\"+0778944442\"\r");
 // Replace x with mobile number
  delay(1000);
  gsmSerial.println("i am in problem plz help my  ");
  // The SMS text you want to send
  delay(1000);
     p=get_gps();
     gsmSerial.listen();
     Serial.print("Your position is : ");
     gsmSerial.print("position is : ");
```

```
     Serial.print("LATTITUDE="); Serial.print(*p,6);gsmSerial.print("LATTITUDE=");
gsmSerial.print(*p,6);gsmSerial.print(",");
// The SMS text you want to send
Serial.print("LONGITUDE=");Serial.print(*(p+1),6);
gsmSerial.print("LONGITUDE=");gsmSerial.print(*(p+1),6);
//The SMS text you want to send
     delay(100);
    gsmSerial.println((char)26);
}

return a;
}
  void get_gsm()
{
   gsmSerial.listen();
    while(gsmSerial.available()>0)
   {Serial.println("INSIDE gsmSerial.available");
    if(gsmSerial.find("Track"))
    {Serial.println("INSIDE track");
     gsmSerial.println("AT+CMGF=1");
     //Sets the GSM Module in Text Mode
     delay(1000);  // Delay of 1 second
     gsmSerial.println("AT+CMGS=\"+0778944442\"\r");
     // Replace x with mobile number
     delay(1000);
     p=get_gps();
     gsmSerial.listen();
     Serial.print("Your Car Location: ");
     gsmSerial.print("Your Car Location: ");
     Serial.print("LATTITUDE="); Serial.print(*p,6);
     gsmSerial.print("LATTITUDE=");gsmSerial.print(*p,6);gsmSerial.print(",");
     // The SMS text you want to send
     Serial.print("LONGITUDE="); Serial.print(*(p+1),6);
     gsmSerial.print("LONGITUDE=");gsmSerial.print(*(p+1),6);
     // The SMS text you want to send
     delay(100);
     gsmSerial.println((char)26);
     // ASCII code of CTRL+Z for saying the end of sms to  the module
```

the schematic circuit of final project (Design B):