

Lampiran

```
#include <SoftwareSerial.h>

#define pin_mq5 A0
#define batas_gas 300

SoftwareSerial gps(4, 5);
SoftwareSerial gsm(2, 3); // RX, TX
String inputString = ""; // a string to hold incoming data
boolean stringComplete = false; // whether the string is complete
String gpsString = ""; // a string to hold incoming data
boolean gpsComplete = false; // whether the string is complete
String gsmString = ""; // a string to hold incoming data
boolean gsmComplete = false; // whether the string is complete
float lat1 = 0;
float long1 = 0;
String lat_motor = "";
String long_motor = "";

bool sudah_kirim = false;
String no_hp = "081367747827";
int data_gas = 0;

void setup() {
```

```

// put your setup code here, to run once:

Serial.begin(9600);

gps.begin(9600);

gsm.begin(9600);

inputString.reserve(200);

Serial.println("Start Program");

gsm.println("AT+CMGF=1");

while (!tunggu_balasan("OK")) {

    gsm.println("AT+CMGF=1");

}

gps.begin(9600);

}

void loop() {

// put your main code here, to run repeatedly:

data_gas = analogRead(pin_mq5);

if (data_gas > batas_gas) {

    if (lat1 != 0 && long1 != 0 && !sudah_kirim) {

        sudah_kirim = true;

        send_sms(no_hp, "Bahaya Kebakaran !!! ");

    } else {

        Serial.println("wAITING GPS");

    }

} else {

```

```

    sudah_kirim = false;
}
Serial.print("data gas = ");
Serial.println(data_gas);

while (1) {
    while (gps.available()) {
        char a = (char)gps.read();
        if (a == '\r') {
        } else if (a == '\n') {
            break;
        } else
            gpsString += a;
        //Serial.write(gps.read());
    }
    Serial.println(gpsString);
    if (gpsString.indexOf("$GPGLL") != -1) {
        Serial.println("Ada");
        break;
    } else {
        gpsString = "";
    }
}
int a = gpsString.indexOf("$GPGLL");
int b = gpsString.indexOf("$GPRMC");

```

```

gpsString = gpsString.substring(a, b);
Serial.println(gpsString);

baca_gps();
}

void baca_gps()
{
  //gpsEvent();
  //Serial.println(gpsString);
  if (gpsString.indexOf("$GPGLL") != -1) {
    String valid = getValue(gpsString, ',', 6);
    if (valid.equals("A")) {
      String latitude = getValue(gpsString, ',', 1);
      String utsel = getValue(gpsString, ',', 2);
      String longitude = getValue(gpsString, ',', 3);
      String bartim = getValue(gpsString, ',', 4);

      String latkiri = latitude.substring(0, 2);
      String latkanan = latitude.substring(2, 12);
      String longkiri = longitude.substring(0, 3);
      String longkanan = longitude.substring(3, 12);

      lat1 = atof(latkiri.c_str());
      float lat2 = atof(latkanan.c_str());
      lat2 /= 60;

```

```
lat1 += lat2;

long1 = atof(longkiri.c_str());

float long2 = atof(longkanan.c_str());

long2 /= 60;

long1 += long2;

if (utsel == "S") {
    lat1 = 0 - lat1;
}

if (bartim == "W") {
    long1 = 0 - long1;
}

Serial.println(lat1, 8);

Serial.println(long1, 8);

lat_motor = String(lat1);

long_motor = String(long1);

gpsString = "";

gpsComplete = false;

} else {

    gpsString = "";

    gpsComplete = false;

}

} else if (gpsComplete) {

    gpsString = "";
```

```
    gpsComplete = false;
}
}
```

```
String getValue(String data, char separator, int index)
```

```
{
    int found = 0;
    int strIndex[] = {0, -1};
    int maxIndex = data.length() - 1;

    for (int i = 0; i <= maxIndex && found <= index; i++) {
        if (data.charAt(i) == separator || i == maxIndex) {
            found++;
            strIndex[0] = strIndex[1] + 1;
            strIndex[1] = (i == maxIndex) ? i + 1 : i;
        }
    }

    return found > index ? data.substring(strIndex[0], strIndex[1]) : "";
}
```

```
void serialEvent() {
    while (gps.available()) {
        char inChar = (char)gps.read();
        if (inChar == '\r') {
            //stringComplete = true;
        }
    }
}
```

```
    } else if (inChar == '\n') {  
        stringComplete = true;  
    } else  inputString += inChar;  
}  
}
```

```
bool tunggu_balasan(String balasan) {  
    float waktu = millis();  
    bool sesuai = false;  
    while (!gsmComplete || millis() - waktu < 5000) {  
        gsmEvent(); //call the function  
    }  
    if (gsmComplete) {  
        Serial.println(gsmString);  
        Serial.println(balasan);  
        if (gsmString.indexOf(balasan) != -1) {  
            sesuai = true;  
        }  
        gsmString = "";  
        gsmComplete = false;  
    }  
    return sesuai;  
}
```

```
void gsmEvent() {
```

```

while (gsm.available()) {
    char inChar = (char)gsm.read();
    gsmString += inChar;
    if (inChar == '\n') {
        gsmComplete = true;
    }
}

}

//fungsi untuk kirim sms

void send_sms(String nomor, String isi_pesan) {

    //delay(100);

    gsm.print("AT + CMGS = \"); // recipient's mobile
number, in international format

    gsm.print(nomor); // recipient's mobile number, in
international format

    gsm.println("\"); // recipient's mobile number, in
international format

    tunggu_balasan(">");

    gsm.print(isi_pesan); // message to send

    gsm.print(" latitude = "); // message to send

    gsm.print(lat1); // message to send

    gsm.print(" longitude = "); // message to send

    gsm.println(long1); // message to send

    delay(100);
}

```



```
gsm.println((char)26);           // End AT command with a ^Z, ASCII code
26

tunggu_balasan("OK");

}
```