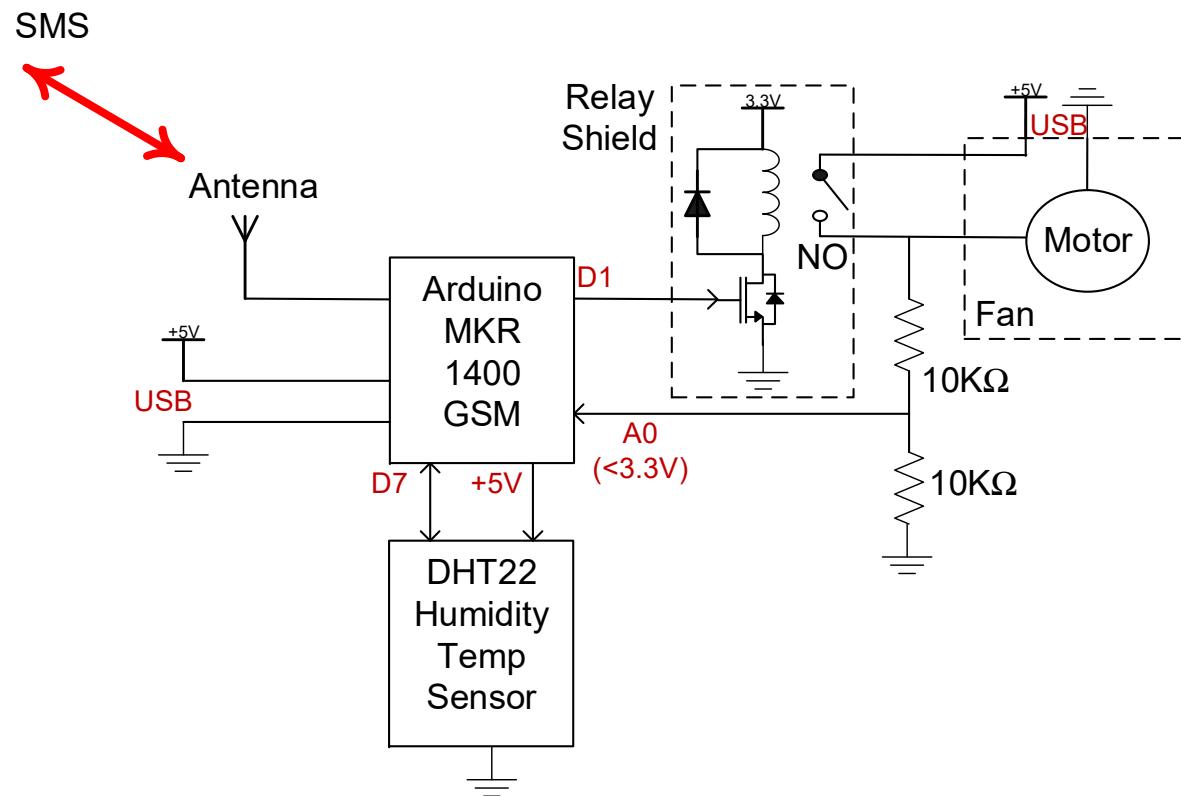


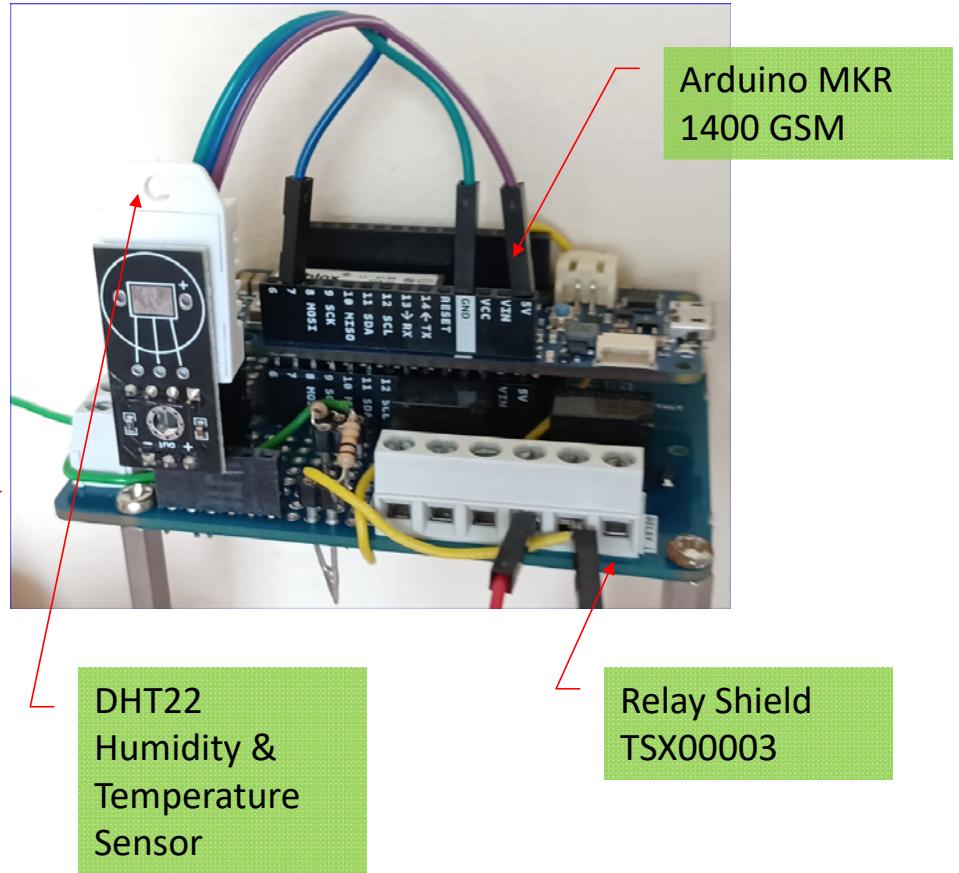
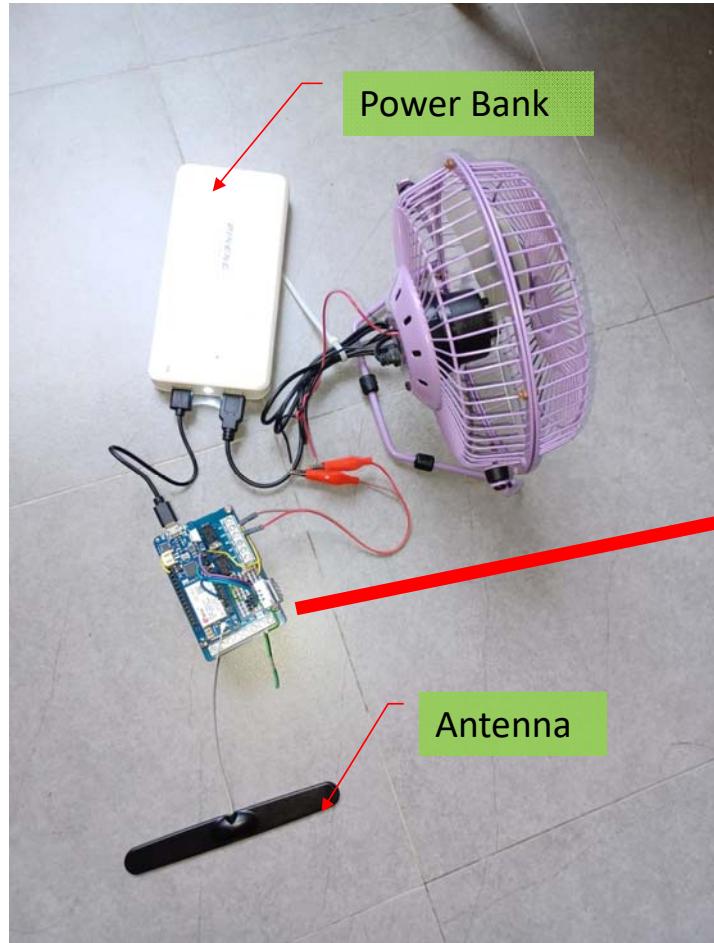
Using Arduino MKR 1400 GSM (SMS) for Remote Control and Sensing

By Tan See Teck

System Overview



Hardware Setup

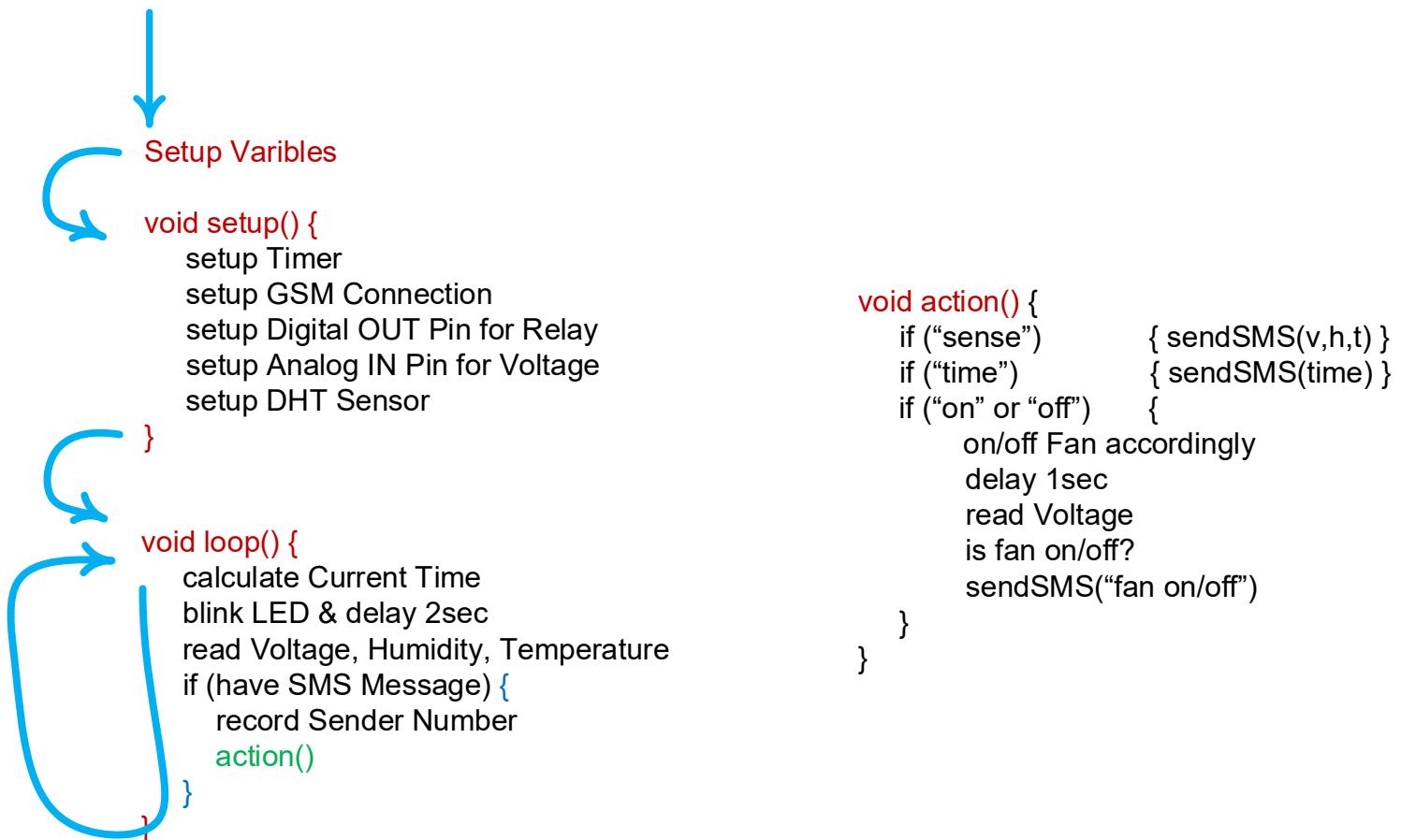


SMS Commands

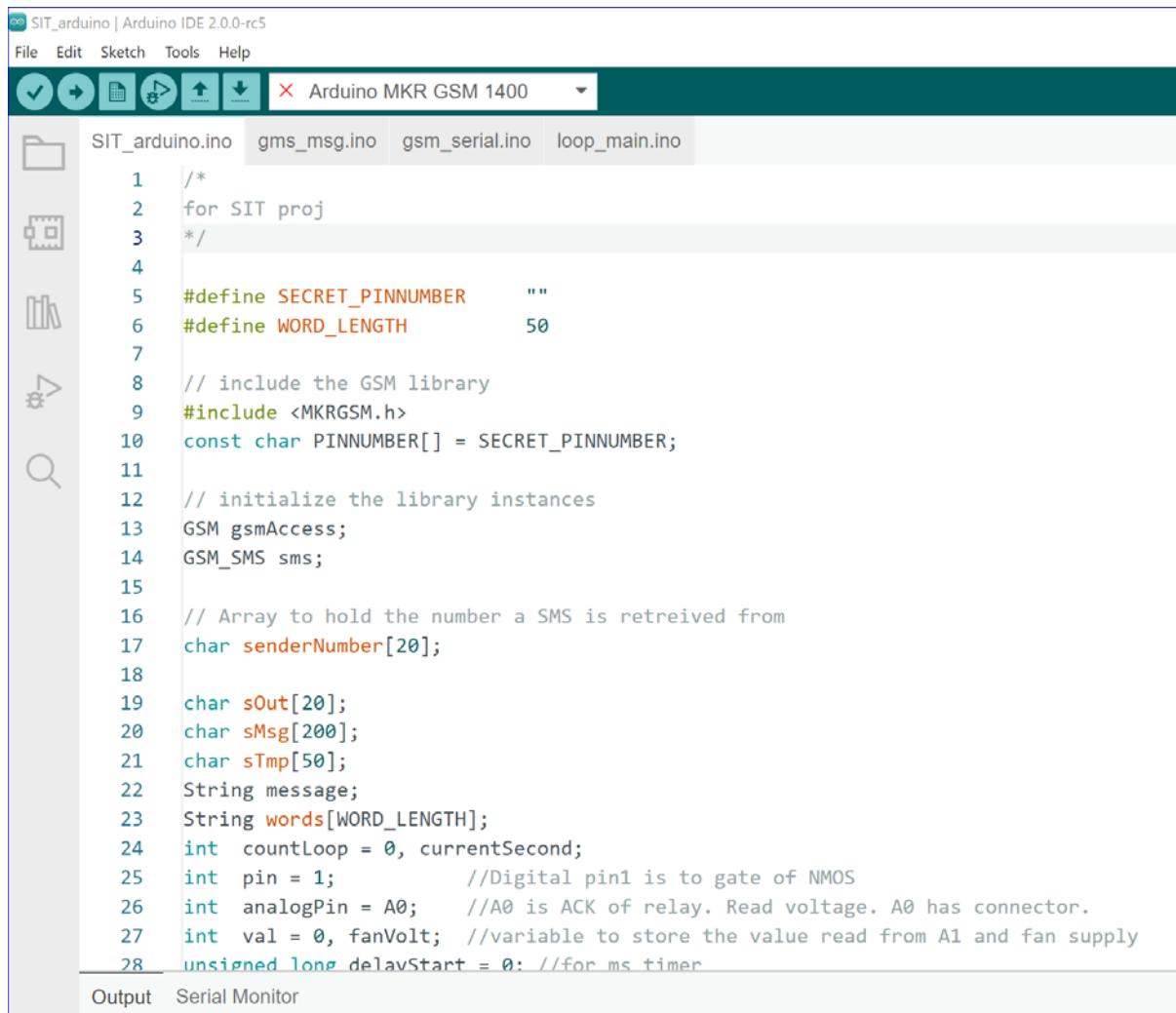
- You can SMS to 81321464

SMS Command	Expected Reply
time	<p>1:46 pm time</p> <p>cur time 2082 sec 1:46 pm</p>
on	<p>1:00 pm on</p> <p>Fan on 1:00 pm</p>
off	<p>1:06 pm off</p> <p>Fan off 1:06 pm</p>
sense	<p>1:05 pm sense</p> <p>Supply:4350mV Humi:79.2% Temp:27.8degC 1:05 pm</p>

Software Overview



Arduino IDE



The screenshot shows the Arduino IDE interface with the following details:

- Title Bar:** SIT_arduino | Arduino IDE 2.0.0-rc5
- Menu Bar:** File Edit Sketch Tools Help
- Toolbar:** Includes icons for Open, Save, Print, and Upload.
- Sketch List:** SIT_arduino.ino, gms_msg.ino, gsm_serial.ino, loop_main.ino
- Code Editor:** Displays the following C++ code for an Arduino MKR GSM 1400 project:

```
1  /*
2  for SIT proj
3  */
4
5  #define SECRET_PINNUMBER      ""
6  #define WORD_LENGTH           50
7
8  // include the GSM library
9  #include <MKRGSM.h>
10 const char PINNUMBER[] = SECRET_PINNUMBER;
11
12 // initialize the library instances
13 GSM gsmAccess;
14 GSM_SMS sms;
15
16 // Array to hold the number a SMS is retrieved from
17 char senderNumber[20];
18
19 char sOut[20];
20 char sMsg[200];
21 char sTmp[50];
22 String message;
23 String words[WORD_LENGTH];
24 int countLoop = 0, currentSecond;
25 int pin = 1;           //Digital pin1 is to gate of NMOS
26 int analogPin = A0;    //A0 is ACK of relay. Read voltage. A0 has connector.
27 int val = 0, fanVolt; //variable to store the value read from A1 and fan supply
28 unsigned long delavStart = 0; //for ms timer
```

Output: Serial Monitor

- Software is free
- How about Hardware?

Cost

Component	Cost (\$)	Link
Arduino MKR 1400 GSM (With antenna)	<120	Lots of sources But this product is no more in production (about 6 months ago)
TSX00003 relay shield	24	TSX00003 relay shield
DHT22 Humidity & Temperature Sensor	7	shopee
Total	<131	

- SIM Card (3G/4G \$20)
- Design & Development Effort
- Any Ready Product? Cost?

Available Product

5. Technical specifications

Parameter item	Reference scope
DC Power supply	9~36VDC, recommend 12VDC1A, optional 110~220VAC @50Hz
Power consumption	12V input Max. 400mA/Average30mA, standby 20mA ;
Cellular Frequency	2G: 850/900/1800/1900Mhz 3G version Optional: (UMTS/HSDPA) W:900/2100@UMTS 900/1800@GSM; C:850/1900@UMTS 850/900/1800/1900@GSM; T:850/2100@UMTS 850/900/1800/1900@GSM; 4G LTE Version Optional
SIM Card	Supporting 3V SIM Card
GSM/3G/4G Antenna	50 Ω SMA Antenna interface
Relay Outputs	2 Relay Outputs 7A@125VAC 5A@125VAC 20A@14VDC

- King Pigeon
- US\$80 per unit
- Shipment Cost US\$45



Possible Application

- Remote Control
 - Fan, Lighting, Water Flow, etc.
- Remote Sensing
 - Temperature, Humidity, Water Level, door open/close, etc.
- Event Trigger
 - When server room heat up
 - When server room too wet

**Thank you
&
Question?**