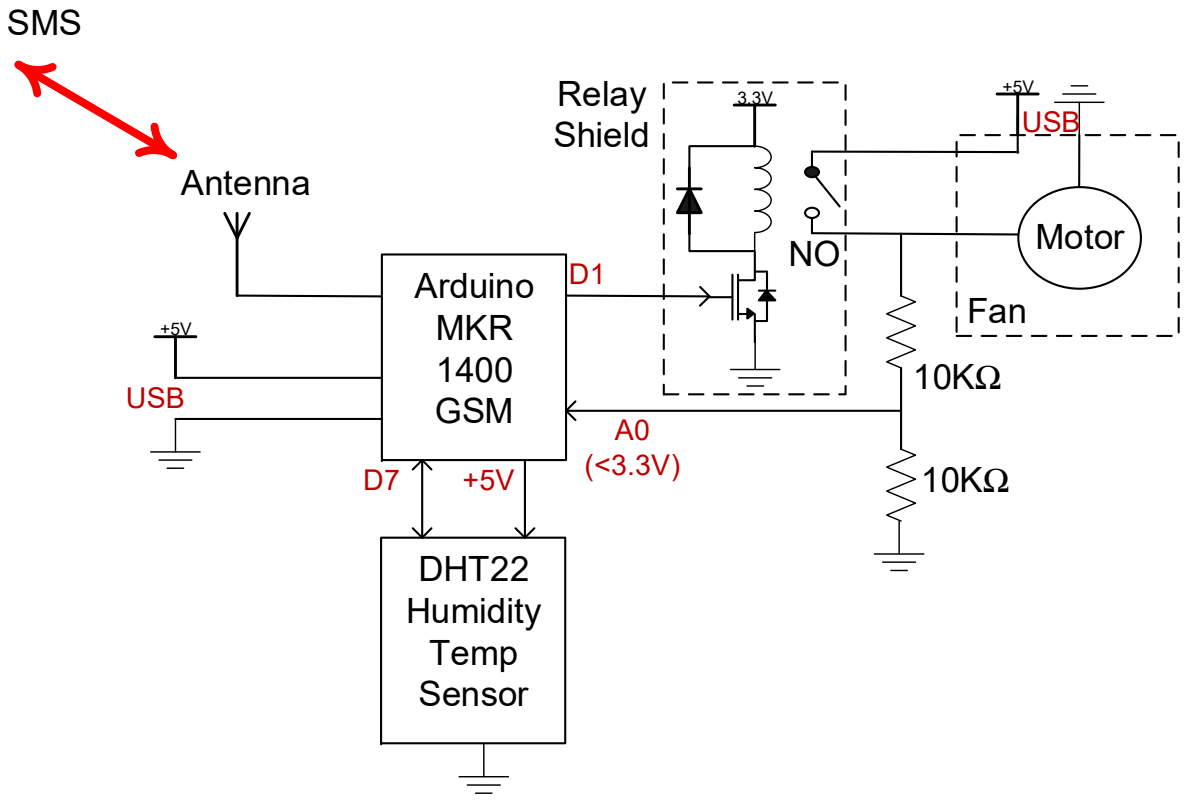
Using Arduino MKR 1400 GSM (SMS) for Remote Control and Sensing

By Tan See Teck

System Overview



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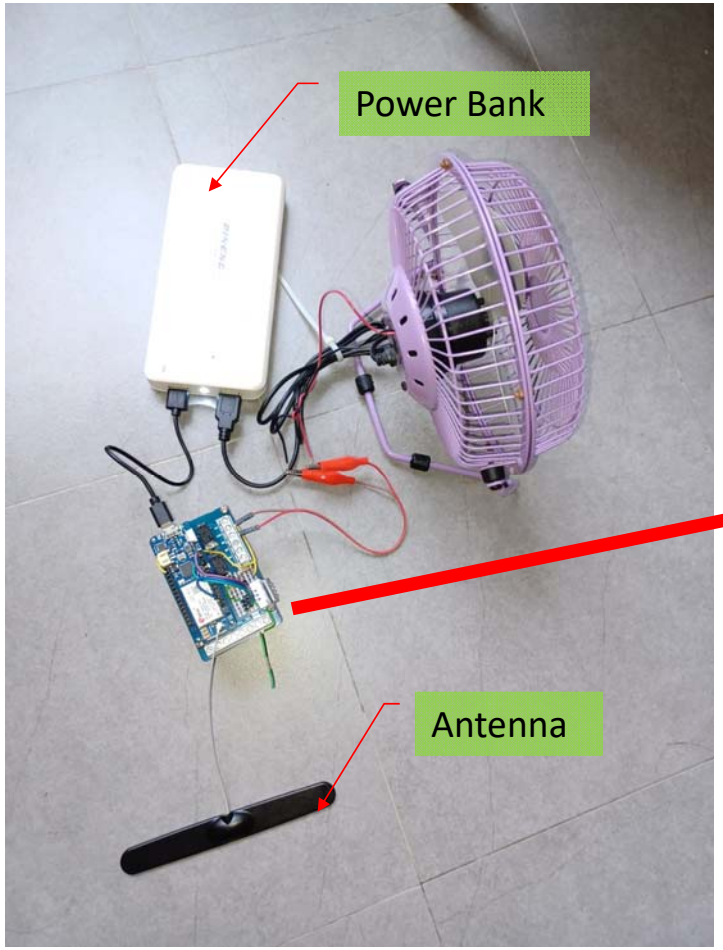
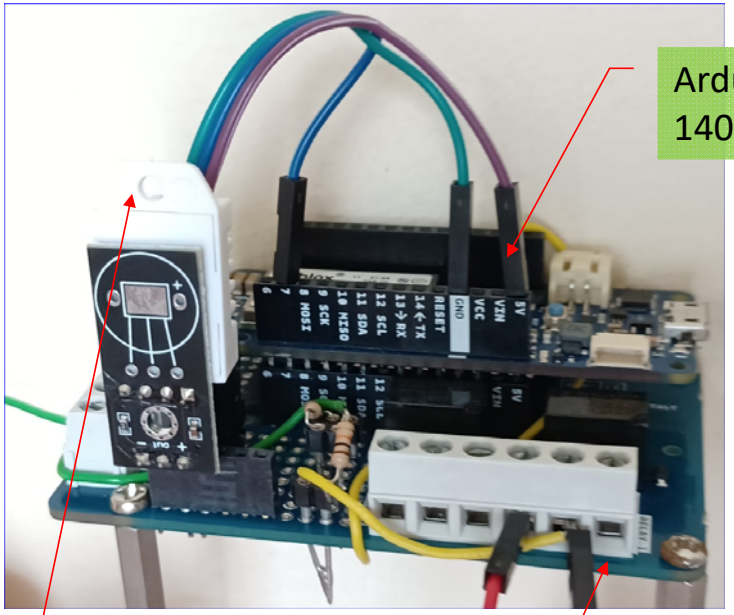
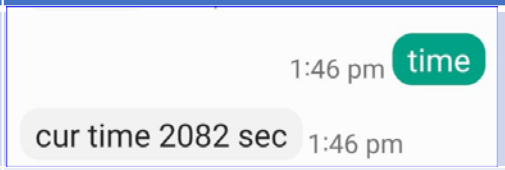
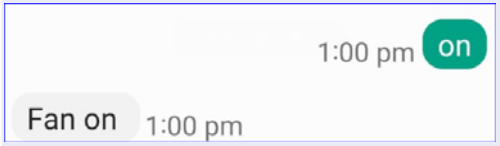
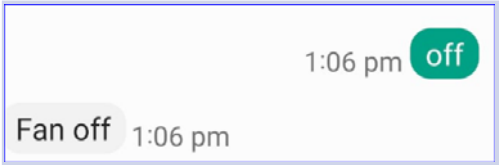
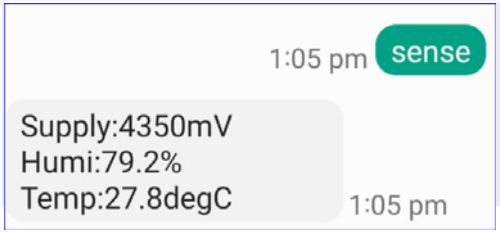
Hardware Setup



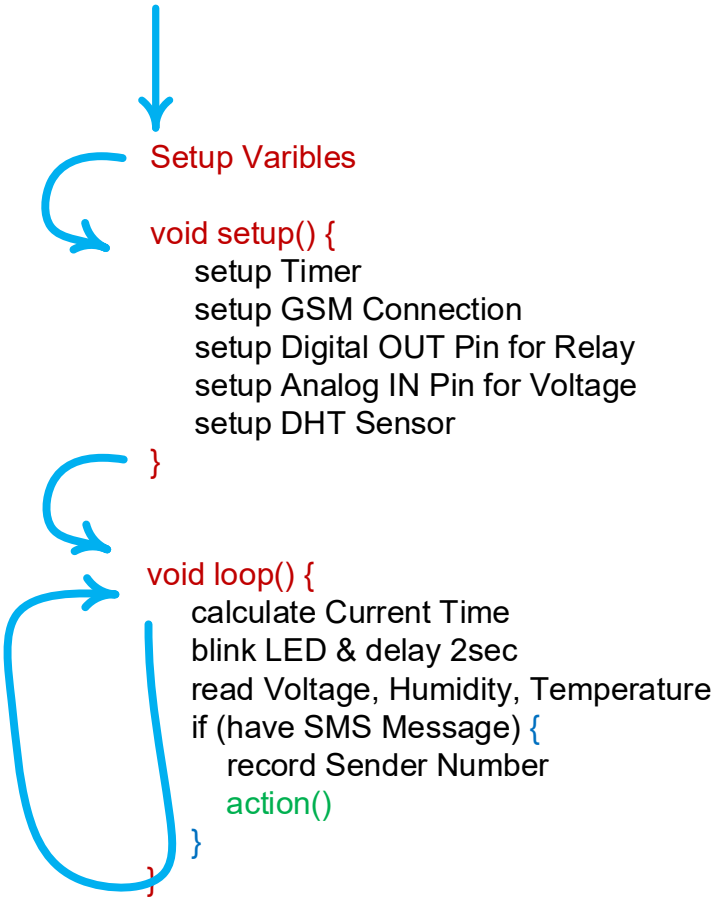


SMS Commands

- You can SMS to 81321464

SMS Command	Expected Reply
time	
on	
off	
sense	

Software Overview



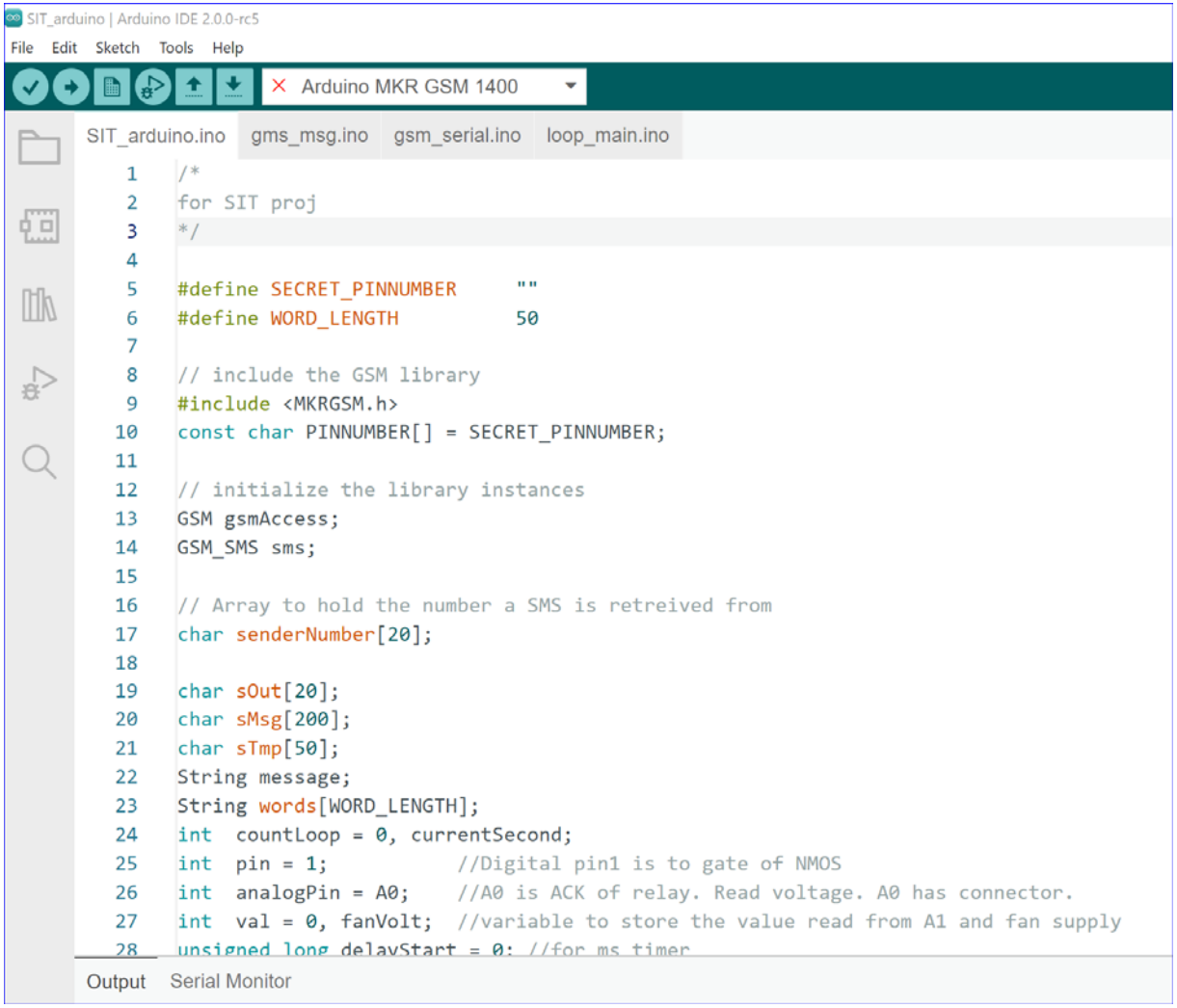
```
Setup Varibles

void setup() {
    setup Timer
    setup GSM Connection
    setup Digital OUT Pin for Relay
    setup Analog IN Pin for Voltage
    setup DHT Sensor
}

void loop() {
    calculate Current Time
    blink LED & delay 2sec
    read Voltage, Humidity, Temperature
    if (have SMS Message) {
        record Sender Number
        action()
    }
}
```

```
void action() {
    if ("sense")          { sendSMS(v,h,t) }
    if ("time")           { sendSMS(time) }
    if ("on" or "off")    {
            on/off Fan accordingly
            delay 1sec
            read Voltage
            is fan on/off?
            sendSMS("fan on/off")
    }
}
```

Arduino IDE



- ❑ 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

3G/4G optional

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


KING PIGEON
RTU5020
GSM/3G/4G LTE
Remote Relay Switch
2 Relay Outputs
RoHS
DC In 7~36V
AC Input
DC OUT
Relay Outputs
OUT+ GND COM DO1 DO2
ANT
QUECTEL
EC25-EC

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?