GROWbox Supervisor System (GROWSS)
Todd Moore
2/8/2019

I am designing an SBC based grow box monitor & controller project.
The project will use an SBC with various components

Requirements

- Monitor in real time:
    - Temp
    - Humidity
    - Date/Time
    - Air Quality **(**smoke**)**
    - Soil moisture level

- Control in real time:
    - Temp Alarm
    - Humidity Alarm
    - Smoke Alarm
    - Soil Moisture Alarm
    - Humidity
    - Fan
    - Lights

- Save History of:
    - Time, Temp, Humidity, Soil Moisture, & Alarms Status, Fan Status

- Display grow information on LCD screen & mobile phone:
    - Time, Temp, Humidity, Soil Moisture, & Alarms Status, Fan Status

---

GROVE SYSTEM http://wiki.seeed

- Arduino Based Design
    - GROVE - TEMPERATURE & HUMIDITY SENSOR https://store.ard
    - COMPANY & SOFTWARE LIBRARY http://wiki.seeed
    - I2C LCD http://wiki.seeed
    - GROVE - OLED DISPLAY 1.12" https://store.ard
    - GROVE - RELAY https://store.ard
    - SoilWatch 10 - Soil moisture sensor https://www.tindi

Pi-mote Control starter kit with 2 sockets	https://energeni
DHT22 Temp/Humid Sensor	https://www.digil
Grove - Water Atomization	http://wiki.seeed

RPI Based Design

Single Board Computer

Raspberry Pi 3 Model B+

Interface to RPI

Grove Base HAT

Grove Base Hat for Raspberry Pi

GrovePi+

Temp/Humid/Moisture

Grove - Temperature&Humidity Sensor Pro

Grove - Moisture Sensor

SoilWatch 10 - Soil moisture sensor

Display

Grove - LCD RGB Backlight

Water Atomizer (Humidifier)

Grove - Water Atomization

Fan/Light Control

Grove - 2-Channel SPDT Relay

Air Quality/Smoke Sensor

MQ2 Sensor

Smoke Alarm

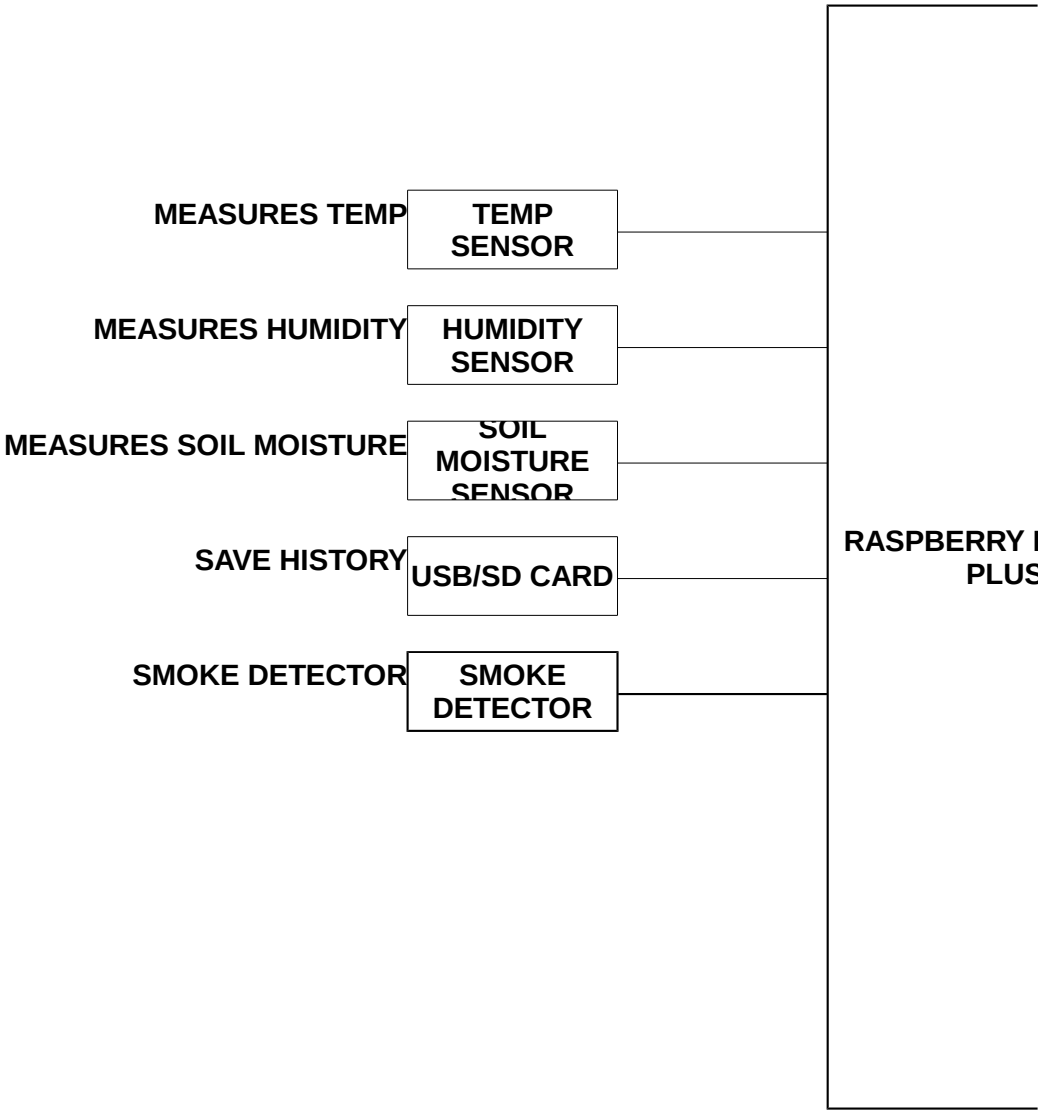
Piezo Buzzer

LED Alarms

Temp Alarm LED
Humid Alarm LED
Moisture Alarm LED

Accessories

Grove to 4 pin Female Jumper, 5 pack



---

studio.com/Grove_System/

uino.cc/usa/grove-temperature-humidity-sensor
studio.com/Grove-Temperature_and_Humidity_Sensor_Pro/
studio.com/I2C_LCD/
uino.cc/usa/grove-oled-display-1-12
uino.cc/usa/grove-relay
e.com/products/pinotech/soilwatch-10-soil-moisture-sensor/

e4u.co.uk/index.php/catalogue/product/ENER002-2PI
key.com/products/en/sensors-transducers/humidity-moisture-sensors/529?k=dht22
studio.com/Grove-Water_Atomization/

https://www.newark.com/raspberry-pi/rpi3-modbp/sbc-arm-cortex-a53-1gb-sdram/dp/4

http://wiki.seeedstudio.com/Grove_Base_HAT/
https://www.amazon.com/Studio-Support-Raspberry-8-Channel-Digital/dp/B07LD8C51

http://wiki.seeedstudio.com/Grove_Base_Hat_for_Raspberry_Pi/
https://www.seeedstudio.com/Grove-Base-Hat-for-Raspberry-Pi-p-3186.html

http://wiki.seeedstudio.com/GrovePi_Plus/
https://www.seeedstudio.com/GroveP-p-2241.html

http://wiki.seeedstudio.com/Grove-Temperature_and_Humidity_Sensor_Pro/

http://wiki.seeedstudio.com/Grove-Moisture_Sensor/
https://www.seeedstudio.com/Grove-Moisture-Sensor-p-955.html

https://www.tindie.com/products/pinotech/soilwatch-10-soil-moisture-sensor/

http://wiki.seeedstudio.com/Grove-LCD_RGB_Backlight/
https://www.seeedstudio.com/Grove-LCD-RGB-Backlight-p-1643.html

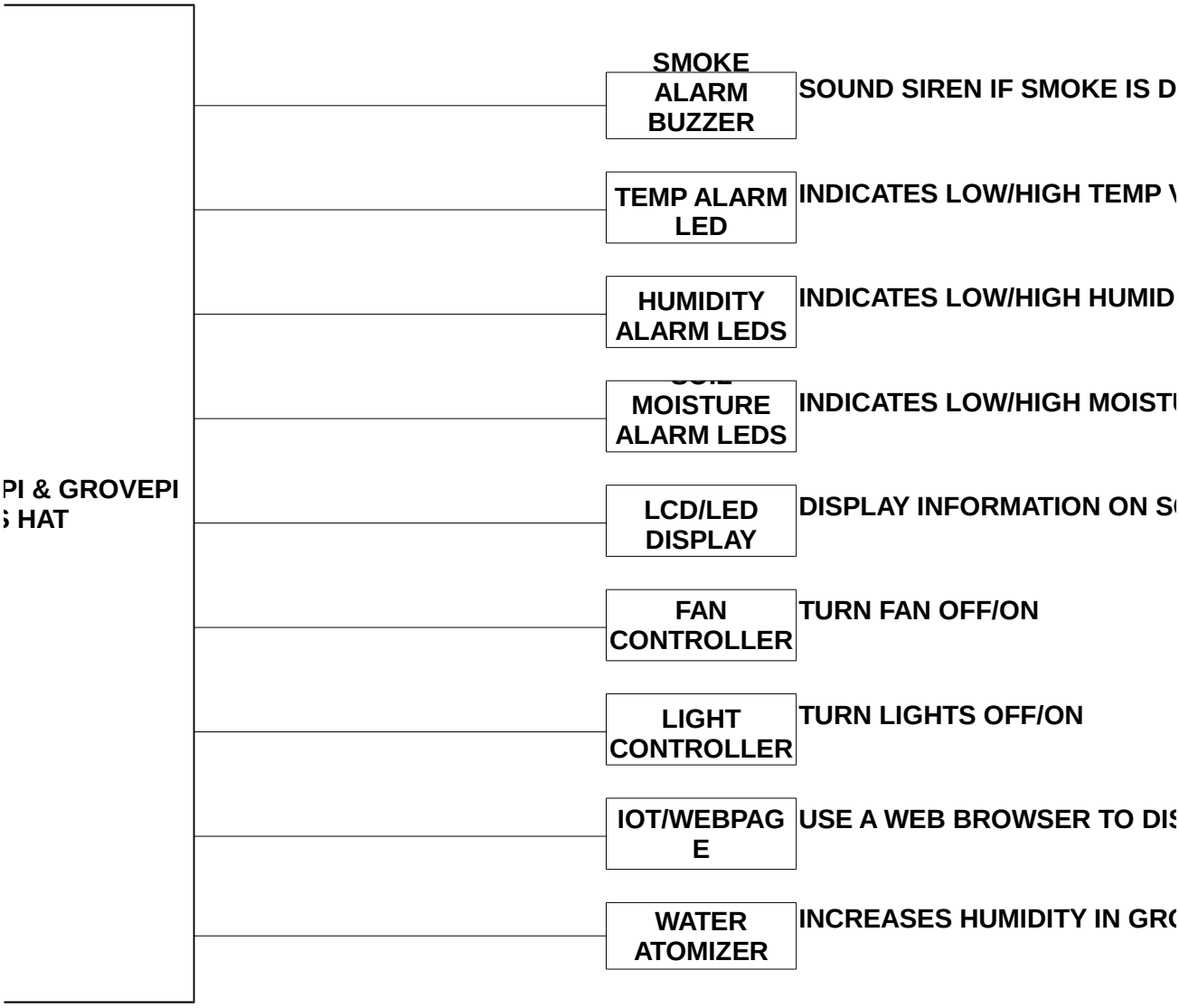
http://wiki.seeedstudio.com/Grove-Water_Atomization/
https://www.seeedstudio.com/Grove-Water-Atomization-v1-0-p-2542.html

http://wiki.seeedstudio.com/Grove-2-Channel_SPDT_Relay/
https://www.seeedstudio.com/Grove-2-Channel-SPDT-Relay-p-3118.html

http://wiki.seeedstudio.com/Grove-Gas_Sensor-MQ2/
https://www.seeedstudio.com/Grove-Gas-Sensor-MQ-p-937.html

http://wiki.seeedstudio.com/Grove-Buzzer/
https://www.seeedstudio.com/Grove-Buzzer-p-768.html

http://wiki.seeedstudio.com/How_To_Choose_The_Right_Cable/
https://www.seeedstudio.com/Grove-4-pin-Female-Jumper-to-Grove-4-pin-Conversion



$11.00

$13.50
$3.90
$22.00 analog output

$22.00 brit pounds **for rpi**
$10.00 ⅃L OUT - will work w/ RPI

9AC7637 $35

$15.00 2 D, 2 A, 3 i2c, 1 UART, 1 Pwr Switch
.J/ref=sr_1_1?s=electronics&ie=UTF8&qid=1546388688&sr=1-1&keywords=Grove+Base+HAT

$10.00 6 D, 4 A, 3 i2c, 1 PWM 1 UART

$30.00 7 D, 3 A, 3 i2c, 1 SER to Grove, 1 SER to PI

$10

analog output
$3.00

$22.00 analog output

$12.00 I2C interface

$10.00 1 Digital input

$7.00 2 Digital inputs, 5V signal, 250VAC @ 10A

$7.00

$2.00 digital out

$0.15 4 digital outs
$0.15
$0.15

$4.00

-Cable-5-PCs-per-PAc-p-1020.html

Total Cost: $120.45

ETECTED

/ALUE

ITY LEVEL

URE LEVEL

CREEN

SPLAY EVERYTHING

OW BOX