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

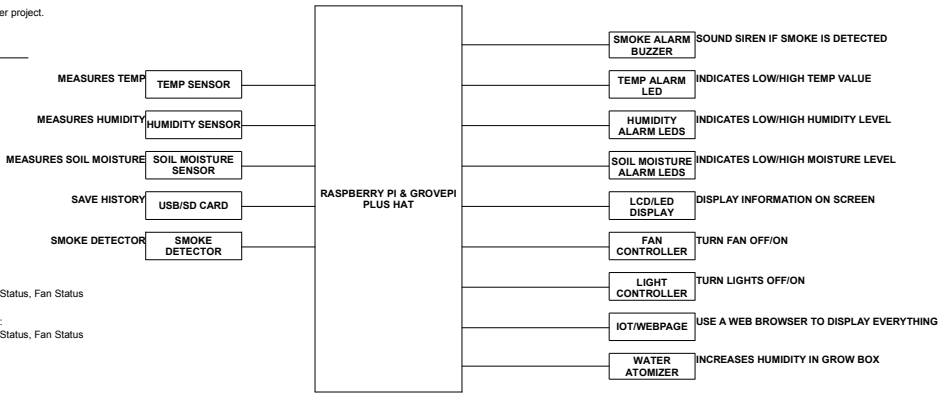
Requirements

- 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.seeedstudio.com/Grove_System/			
- Arduino Based Design				
GROVE - TEMPERATURE & HUMIDITY SENSOR	https://store.arduino.cc/usa/grove-temperature-humidity-sensor	$11.00		
COMPANY & SOFTWARE LIBRARY	http://wiki.seeedstudio.com/Grove-Temperature_and_Humidity_Sensor_Pro/			
I2C LCD	http://wiki.seeedstudio.com/I2C_LCD/			
GROVE - OLED DISPLAY 1.12"	https://store.arduino.cc/usa/grove-oled-display-1-12	$13.50		
GROVE - RELAY	https://store.arduino.cc/usa/grove-relay	$3.90		
SoilWatch 10 - Soil moisture sensor	https://www.tindie.com/products/pinotech/soilwatch-10-soil-moisture-sensor/	$22.00	analog output	
Pi-mote Control starter kit with 2 sockets	https://energenie4u.co.uk/index.php/catalogue/product/ENER002-2PI	$22.00	brit pounds	**for rpi**
DHT22 Temp/Humid Sensor	https://www.digikey.com/products/en/sensors-transducers/humidity-moisture-sensors/529?k=dht22	$10.00	AL OUT - will work w/ RPI	
Grove - Water Atomization	http://wiki.seeedstudio.com/Grove-Water_Atomization/			

RPI Based Design

Single Board Computer				
Raspberry Pi 3 Model B+	https://www.newark.com/raspberry-pi/rpi3-modbp/sbc-arm-cortex-a53-1gb-sdram/dp/49AC7637		$35	
Interface to RPI				
Grove Base HAT	http://wiki.seeedstudio.com/Grove_Base_HAT/ https://www.amazon.com/Studio-Support-Raspberry-8-Channel-Digital/dp/B07LD8C51J/ref=sr_1_1?s=electronics&ie=UTF8&qid=1546388688&sr=1-1&keywords=Grove+Base+HAT		$15.00	2 D, 2 A, 3 i2c, 1 UART, 1 Pwr Switch
Grove Base Hat for Raspberry Pi	http://wiki.seeedstudio.com/Grove_Base_Hat_for_Raspberry_Pi/ https://www.seeedstudio.com/Grove-Base-Hat-for-Raspberry-Pi-p-3186.html		$10.00	6 D, 4 A, 3 i2c, 1 PWM 1 UART
GrovePi+	http://wiki.seeedstudio.com/GrovePi_Plus/ https://www.seeedstudio.com/GroveP-p-2241.html		$30.00	7 D, 3 A, 3 i2c, 1 SER to Grove, 1 SER to PI
Temp/Humid/Moisture				
Grove - Temperature&Humidity Sensor Pro	http://wiki.seeedstudio.com/Grove-Temperature_and_Humidity_Sensor_Pro/		$10	
Grove - Moisture Sensor	http://wiki.seeedstudio.com/Grove-Moisture_Sensor/ https://www.seeedstudio.com/Grove-Moisture-Sensor-p-955.html		$3.00	analog output
SoilWatch 10 - Soil moisture sensor	https://www.tindie.com/products/pinotech/soilwatch-10-soil-moisture-sensor/		$22.00	analog output
Display				
Grove - LCD RGB Backlight	http://wiki.seeedstudio.com/Grove-LCD_RGB_Backlight/ https://www.seeedstudio.com/Grove-LCD-RGB-Backlight-p-1643.html		$12.00	I2C interface
Water Atomizer (Humidifier)				
Grove - Water Atomization	http://wiki.seeedstudio.com/Grove-Water_Atomization/ https://www.seeedstudio.com/Grove-Water-Atomization-v1-0-p-2542.html		$10.00	1 Digital input
Fan/Light Control				
Grove - 2-Channel SPDT Relay	http://wiki.seeedstudio.com/Grove-2-Channel_SPDT_Relay/ https://www.seeedstudio.com/Grove-2-Channel-SPDT-Relay-p-3118.html		$7.00	2 Digital inputs, 5V signal, 250VAC @ 10A
Air Quality/Smoke Sensor	http://wiki.seeedstudio.com/Grove-Gas_Sensor-MQ2/		$7.00	
MQ2 Sensor	https://www.seeedstudio.com/Grove-Gas-Sensor-MQ-p-937.html			
Smoke Alarm				
Piezo Buzzer	http://wiki.seeedstudio.com/Grove-Buzzer/ https://www.seeedstudio.com/Grove-Buzzer-p-768.html		$2.00	digital out
LED Alarms				
Temp Alarm LED			$0.15	4 digital outs
Humid Alarm LED			$0.15	
Moisture Alarm LED			$0.15	
		Total Cost:	$101.45	