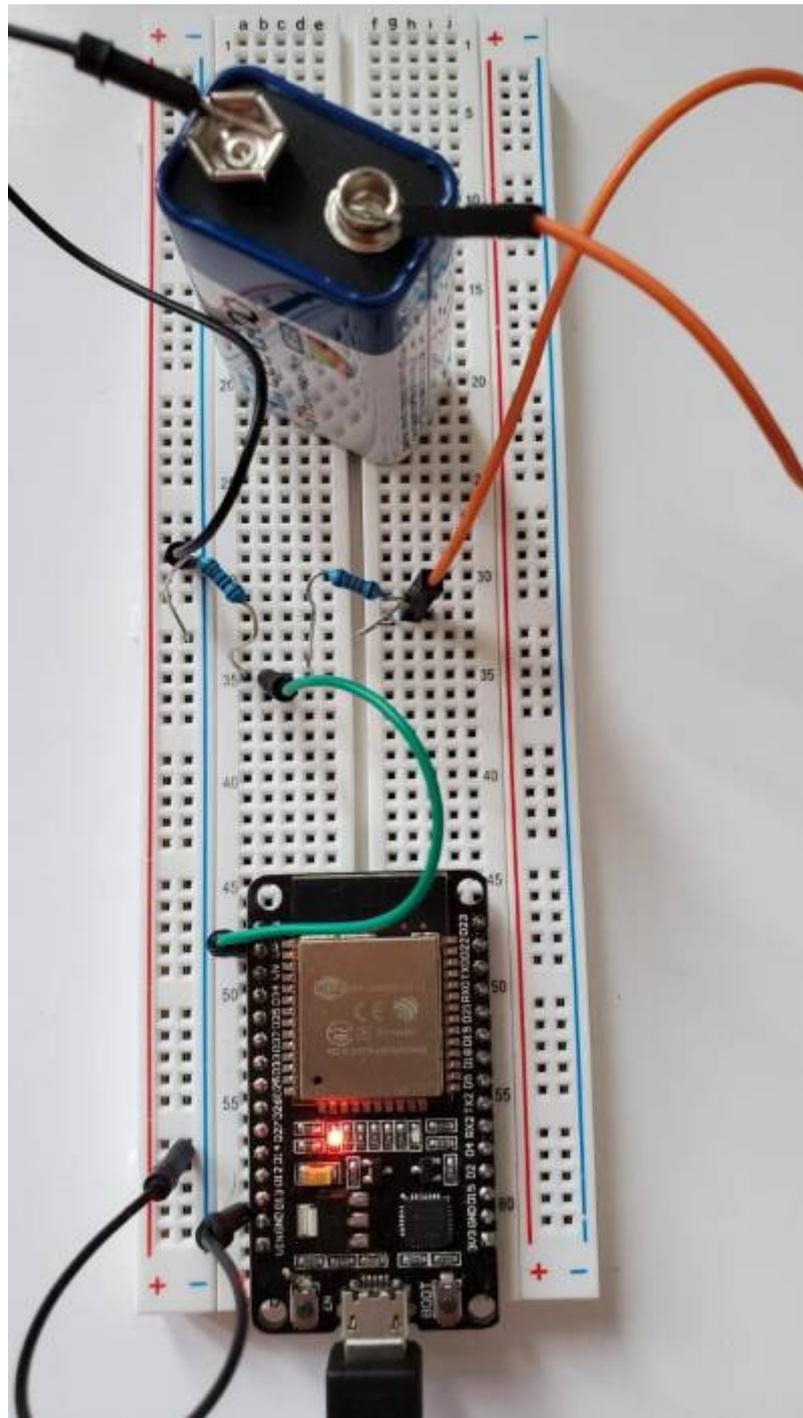
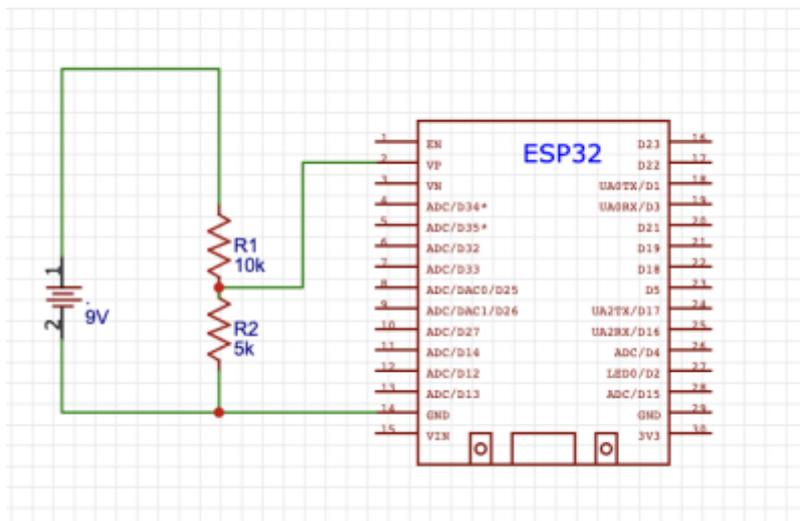


Build



Schematics



Code & Description

**/Reading of voltage is done by the Analog Pin reader.
 /Because the max input voltage on the pins is 3.3 V we cant directly read the 9V battery voltage.

```
int potPin = A0;           // Analog pin has to be ADC 1, because ADC 2 are
                           // used by wifi and wont work
int potValue;
float voltage =0;         // float because its a decimal number not integer
float battery_percent;
```

```
void setup() {
    Serial.begin(115200);

    {

        potValue = analogRead(potPin);
        float voltage = (3.3/4095.0) * potValue * 2.73;
```

**/Resistors and other components can have a varying number of outputs, although they are usually minimal
 */additional calibration has to be done in order to get accurate readings
 */We have found that the use of a multimeter will help in determining the values that will provide best outcomes
 /Because we have different boards, resistors and setups, the final code could have alterations in the calibrating numbers

```
Serial.print("potValue:");
Serial.print(potValue);
```

**/While the serial monitor output can be changed, we are more interested is*

in the overall result which is transmitted

**/to Grafana for easy access*

```
Serial.print(" Voltage:");  
Serial.print(voltage);  
Serial.println("V");
```

battery_percent = mapfloat(voltage, 3.0, 9.0, 0 , 100); // min value cut off at 6V and maximum voltage is 9V

```
if (battery_percent > 100)  
{  
    battery_percent = 100;  
}  
if (battery_percent < 0)  
{  
    battery_percent = 0;  
}
```

```
Serial.print("Battery Percentage = ");  
Serial.println(battery_percent);
```

```
if (voltage > 7.0 && voltage < 8.2) // THIS VALUES HAVE TO CHANGE  
ACCORDING TO SOURCE  
{Serial.print("Low bat"); // USE VOLTMETER TO FIND  
THE ACCURATE VOLTAGE  
}
```

```
if (voltage <6.5) //cut-off value is at 6V according to  
specification , we use 6.5V  
{Serial.print("Replace Battery");  
}  
delay(1000);
```

```
}  
}
```

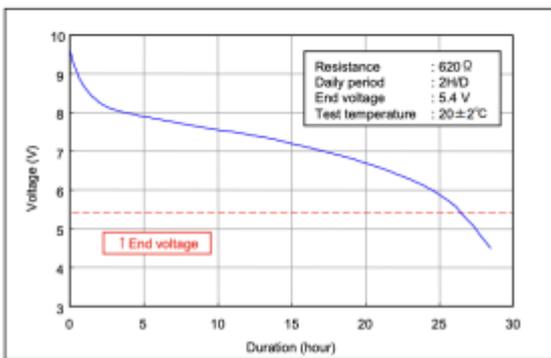
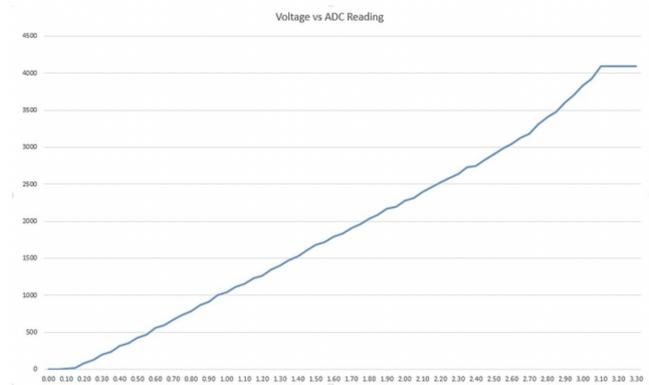
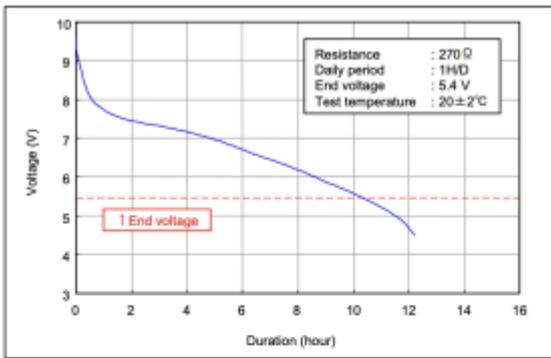
```
float mapfloat(float x, float in_min, float in_max, float out_min, float  
out_max)  
{  
    return (x - in_min) * (out_max - out_min) / (in_max - in_min) + out_min;
```

```
}  
  
void loop()  
{  
  
}  
  
// NO LOOP NEEDED,,, ONE VALUE WITH  
WARNING SHOULD BE DISPLAYED ON GRAFANA
```

Issues & Characteristics

*The actual voltage will not be 100% accurate because the ADC pins have a non-linear

■ Typical Discharge Curve
6F22



==== Results =====

```

fL@f Z = 04f
f potValue:0 Voltage:0.00V
Battery Percentage = 0.00
Replace Batteryets Jun  8 2016 00:22:57

rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
mode:DIO, clock div:1
load:0x3fff0030,len:1344
load:0x40078000,len:13516
load:0x40080400,len:3604
entry 0x400805f0
potValue:2566 Voltage:5.65V
Battery Percentage = 44.09
Replace Batteryets Jun  8 2016 00:22:57

rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
mode:DIO, clock div:1
load:0x3fff0030,len:1344
load:0x40078000,len:13516
load:0x40080400,len:3604
entry 0x400805f0
potValue:0 Voltage:0.00V
Battery Percentage = 0.00
Replace Batteryets Jun  8 2016 00:22:57

rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
mode:DIO, clock div:1
load:0x3fff0030,len:1344
load:0x40078000,len:13516
load:0x40080400,len:3604
entry 0x400805f0
potValue:2557 Voltage:5.63V
Battery Percentage = 43.76
Replace Battery

```

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