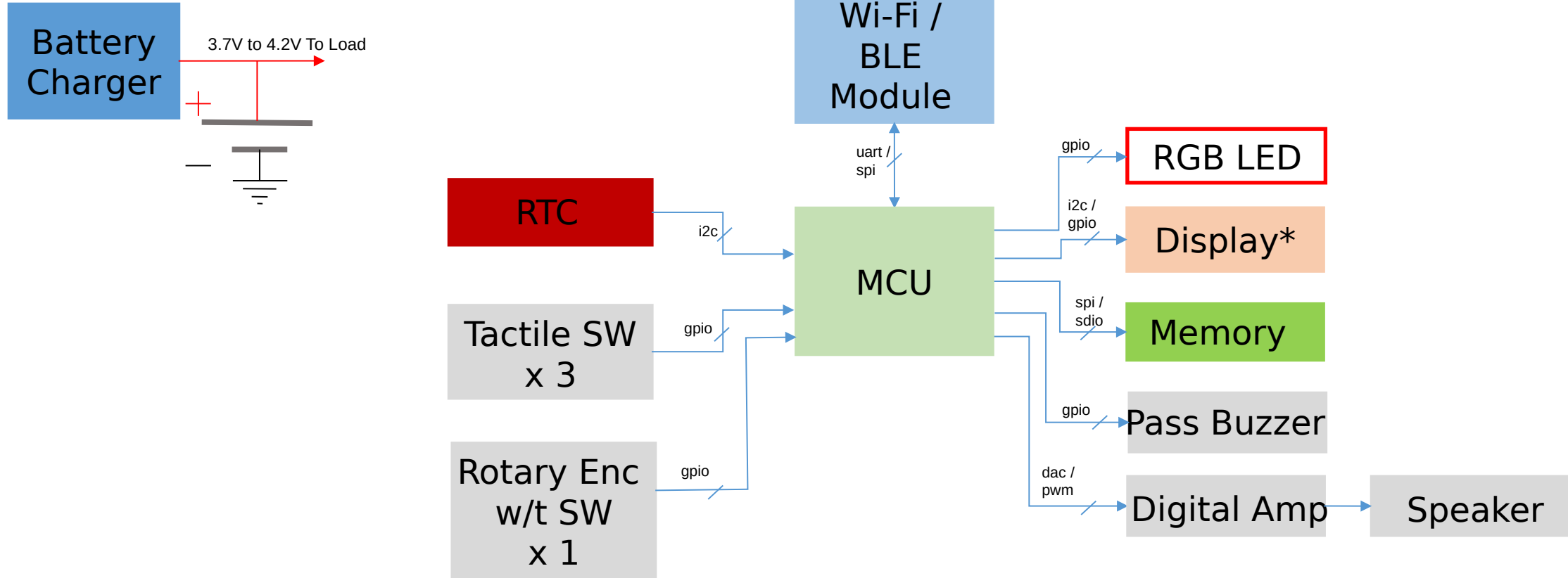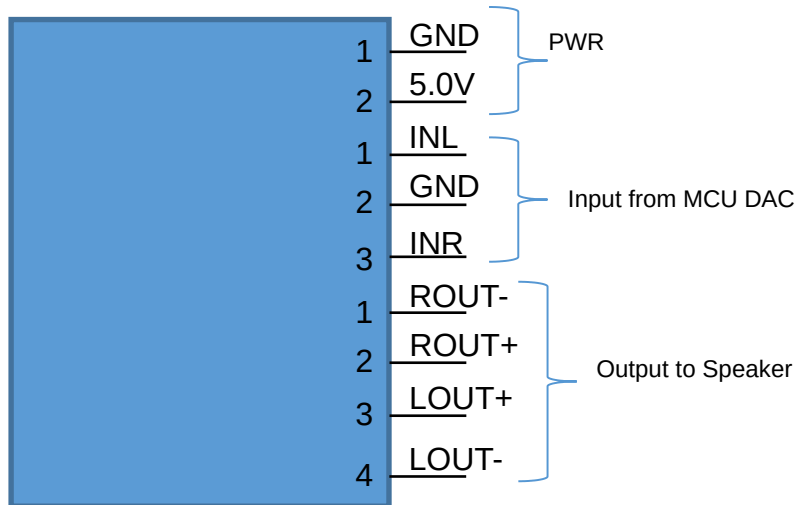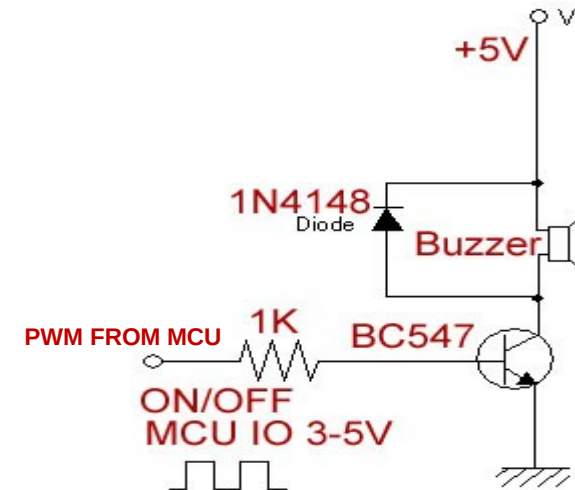# Protimer

* LCD or OLED

1. Firmware requirements and signup
2. Firmware Design and firmware flow
3. Design and dev on Evaluation board
4. Custom Board Design
5. Production and Testing

PASSIVE BUZZER

DIGITAL AMPLIFIER
SPEAKER

Pin	Signal	Group
1	GND	PWR
2	5.0V	
1	INL	Input from MCU DAC
2	GND	
3	INR	
1	ROUT-	Output to Speaker
2	ROUT+	
3	LOUT+	
4	LOUT-	

+5V

1N4148
Diode

Buzzer

PWM FROM MCU   1K   BC547

ON/OFF
MCU IO 3-5V

0.96 Inch I2C/IIC
4pin OLED Display

3.3V/5.0V

Pin	Name
1	GND
2	VCC
3	SCL
4	SDA

e-Ink Display Module

Pin	Name
1	VCC_3.3V
2	GND
3	DIN / MOSI
4	CLK / SCLK
5	CS / CE0
6	DC
7	RST
8	BUSY

Nokia 5110 LCD Display

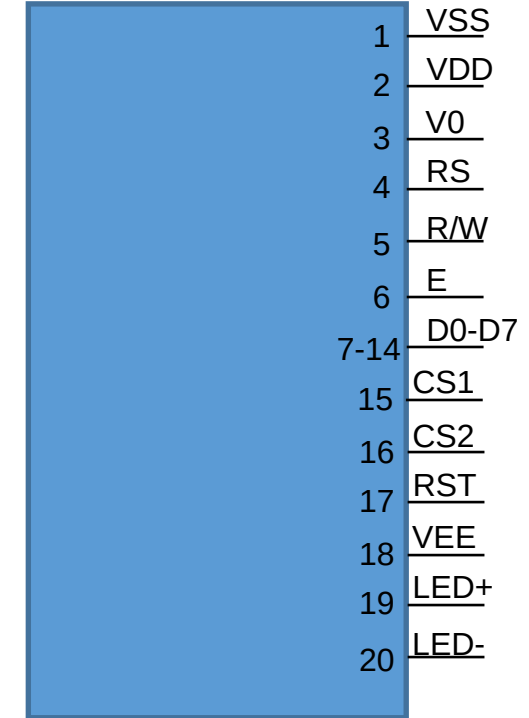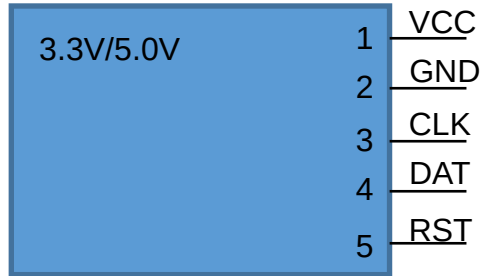| Pin	Name
1	RST
2	CE
3	DC
4	DIN
5	CLK
6	VCC
7	BL
8	GND
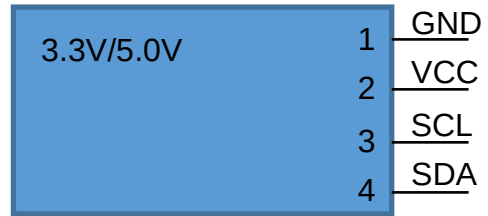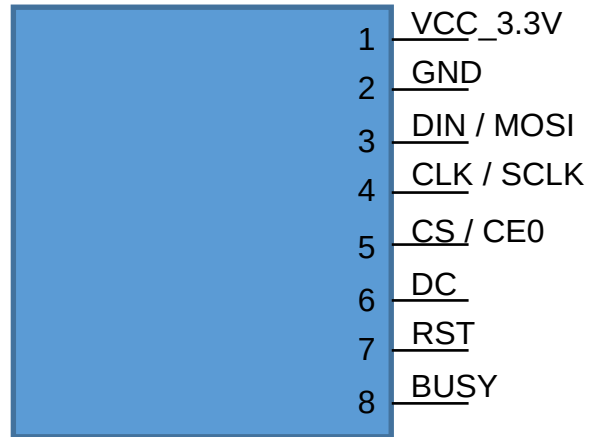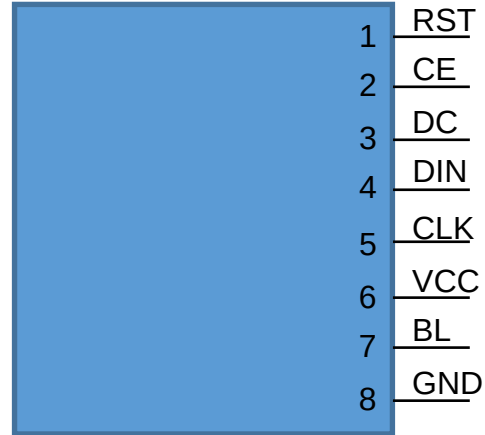
(Reset) RST—-> D3
(Chip Selection) CE—->D4
(Data/Commands Choice) DC—->D5
(Serial Data Line)Din—->D6
(Serial Clock Speed.)CLK—->D7
(Backlight Control Terminal) BL—->Gnd
Vcc—-> 5v to 7V
Gnd—>Gnd

JHD12864E 128x64
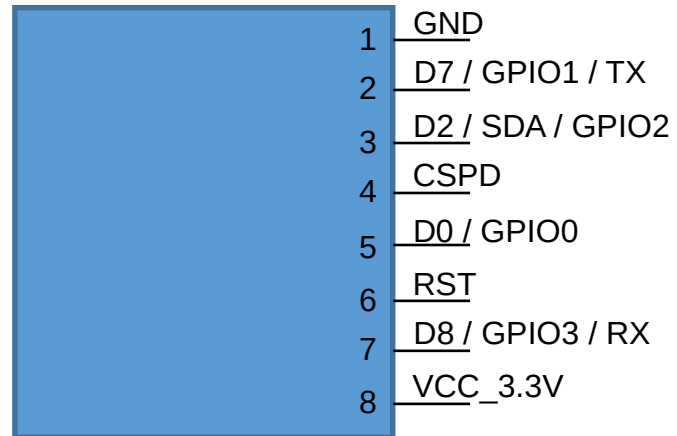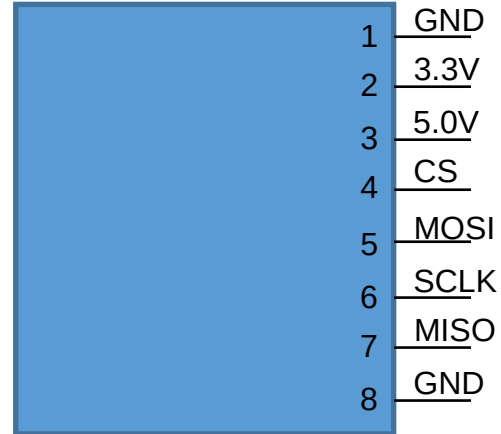## Character LCD Display
With Blue Backlight

Pin	Name
1	VSS
2	VDD
3	V0
4	RS
5	R/W
6	E
7-14	D0-D7
15	CS1
16	CS2
17	RST
18	VEE
19	LED+
20	LED-

Real Time Clock Module with Battery DS1302 RTC

3.3V/5.0V

1	VCC
2	GND
3	CLK
4	DAT
5	RST

ESP8266 Module

1	GND
2	D7 / GPIO1 / TX
3	D2 / SDA / GPIO2
4	CSPD
5	D0 / GPIO0
6	RST
7	D8 / GPIO3 / RX
8	VCC_3.3V

2GB SD Card module

1	GND
2	3.3V
3	5.0V
4	CS
5	MOSI
6	SCLK
7	MISO
8	GND

RGB LED

3.3V/5.0V

1	Red
2	Blue
3	Green
4	GND

TACTILE SW

SW Press = 0;
SW Release = 1;

1	VCC
2	SW1
3	SW2
4	SW3
5	GND

ROTARY ENCODER

SW Press = 0;
SW Release = 1;

1	CLK
2	DT
3	NO_SW
4	VCC_5V
5	GND