Developer Guide
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TempScanner Group 5
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System Overview

This device is a wall mounted contactless temperature scanner that is accurate within 1 degree fahrenheit. The device is able to connect to a server wirelessly and transmit the user data to that server for storage. Once a user walks up to the device the motion sensor will turn it on and send a welcome message to the user then begin to scan their temperature through the user's forehead. The OLED screen will display the live temperature and if the temperature is above 100.4 degrees fahrenheit then a buzzer will sound and display a message on the screen letting the user know they are sick. This device was built with the idea that a company could use it for its employees or a school could use it for its student's.

Electrical Specification

Supply Voltage (V)	Maximum: 5	Minimum: 3.3
Supply Current (A)	Maximum: 1	Normal: 1

User Guide

- Setting up
  - Place battery in battery pack
  - Place electrical components inside enclosure and secure
  - Connect the Wemos board to the 2.4Ghz wifi band
  - Mount to a flat surface at an appropriate height for users to scan their forehead
  - Turn the switch on
- Operating
  - Walk up to the device and wait for the welcome message
  - After the welcome message follow the instructions on the OLED
  - After the scan is complete you will hear a beep and a message will appear letting you know if you can enter or not
  - In order to access the data you will need to access teamspeak
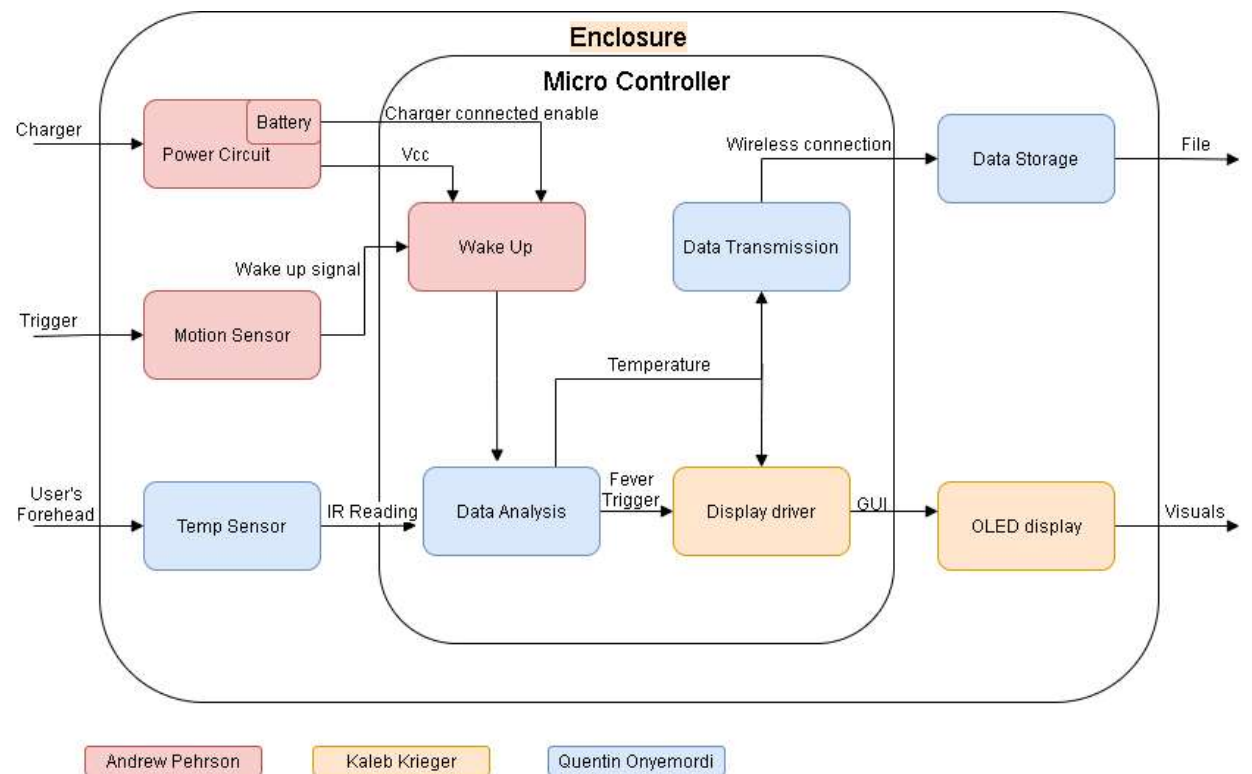
Artifacts

Figure 1 Block Diagram

Block Diagram- Figure 1 demonstrates all the main blocks within our device or the important components in our project, each block has inputs and outputs that relate to specific interface designs. The power circuit takes power from the charger and charges the battery, this sends a wake up signal to the machine for the first time. The motion sensor is triggered by motion of a mover that then sends a wake up signal to the device. The temperature sensor takes in the data from the user and computes it to data analysis where it is then driven to the display and stored in the server.
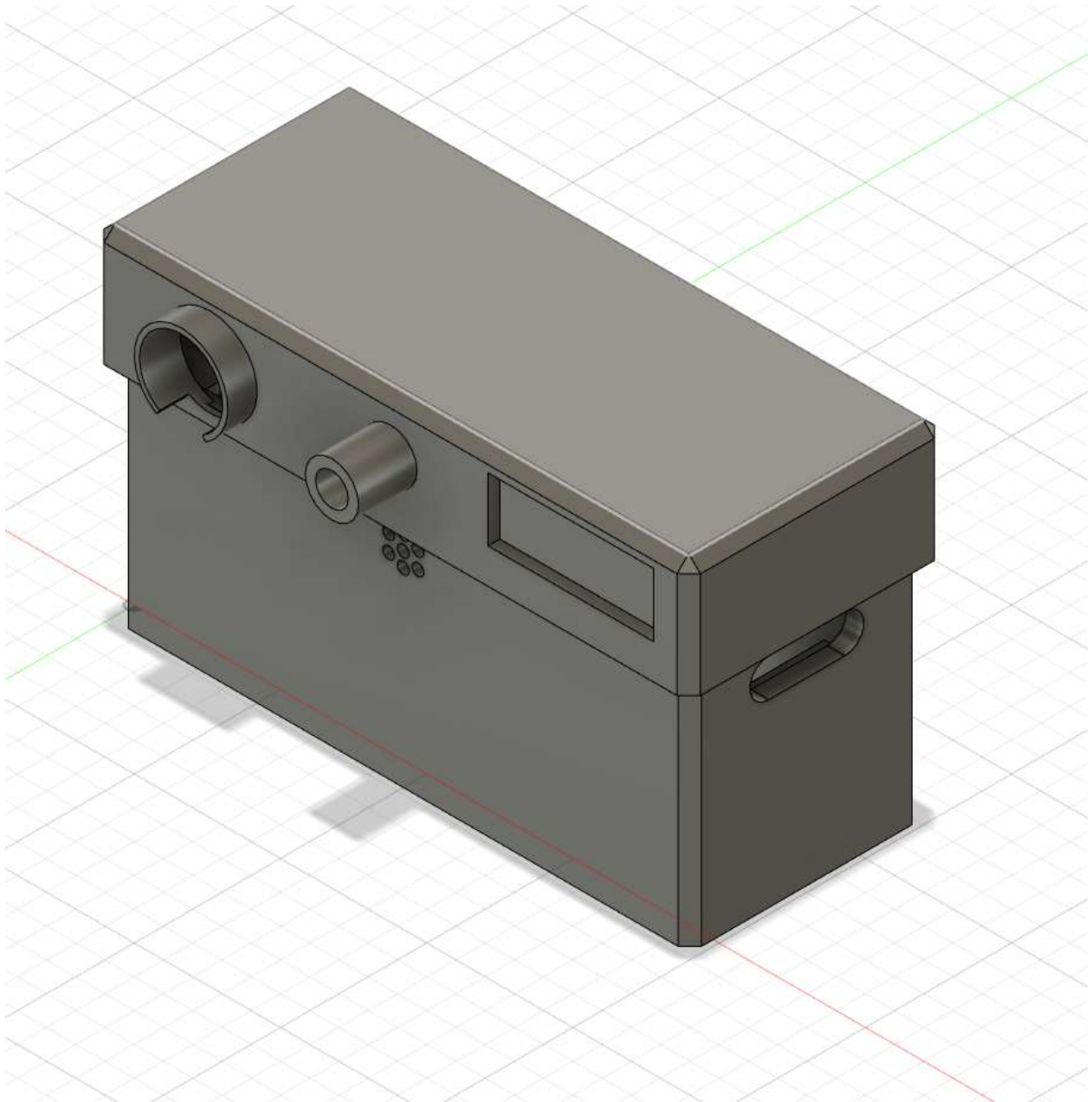
Figure 2 Wiring Schematic of the contactless temperature sensor

Schematic- The schematic above illustrates the wiring connections between all the modules in our project. All the components used in the project connect to our PCB which is then powered by a USB-C port or battery which provides 3.3v. Both the SDA and SCL pins were used to communicate between the devices.

Figure 3 3d ortho view of the enclosure for the device

3D Model - The 3d model shown in figure 3 is the enclosure for our display, the enclosure uses small cut outs in the top to hold and focus our sensors and OLED. The cut out on the right side is to allow for USB-C to plug into the device to charge it.
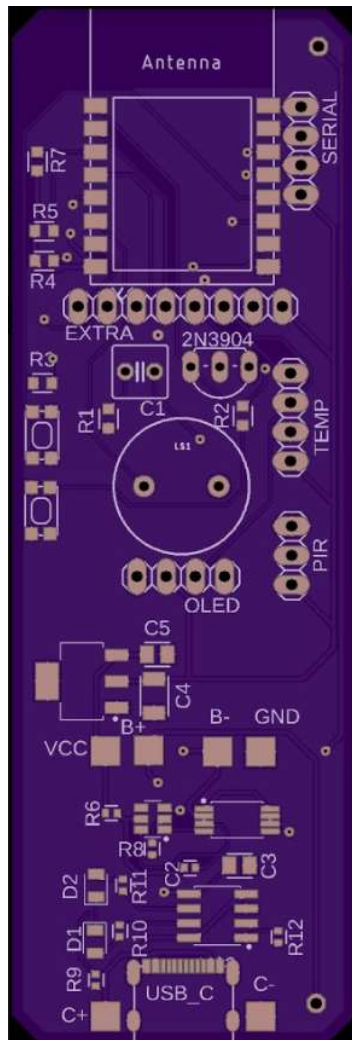
PCB Information

Figure 4 PCB physical layout

PCB dimensions: 90mm x 31.5mm

Bill of materials (BOM)

Part	Part Number	Package	Quantity	Price	Datasheet	Purchase link
OLED	SSD1306		1(5)	$16.99	https://cdn-shop.adafruit.com/datasheets/SSD	https://www.amazon.com/dp/B08L7QW7
Temp Sensor (GY-906) get 3.3v	MLX90614ESF		3	$13.88	https://www.sparkfun.com/datasheets/Sensor	https://www.amazon.com/MLX90614ESF
Microcontroller	ESP8266-12		1(5)	$10.99	https://www.elecrow.com/download/ESP-12F	https://www.amazon.com/KOOBOOK-Mic
PIR sensor	BS412		3	$13.99	https://cdn-shop.adafruit.com/product-files/46	https://www.amazon.com/Onyehn-Pyroel
usb charger	TP4056		1(12)	$9.59	https://dlnmh9ip6v2uc.cloudfront.net/datashe	https://www.amazon.com/ALAMSCN-Lith
Battery	18650		3	$1.00	http://www.molicel.com/wp-content/uploads/D	I have a bunch
PCB			3	$47		
switch						https://eecs.oregonstate.edu/education/te
buzzer						https://www.amazon.com/GFORTUN-Ter
10k ohm						
voltage regulator	LE33CZ-TR		1		https://www.digikey.com/en/products/detail/str	
SMD Tactile Switch 50mA 32V			2		https://www.ckswitches.com/media/1908/kmr7	
1k ohm		0603	1			
1uf capasitor		2mm space throughole	1			
2n3904		to-92	1			
buzzer	HF-12095		1		https://datasheetspdf.com/pdf/1302267/Kings	https://www.amazon.com/gp/product/B07