# Wireless Emergency Stop Button

PE02
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# Inspiration

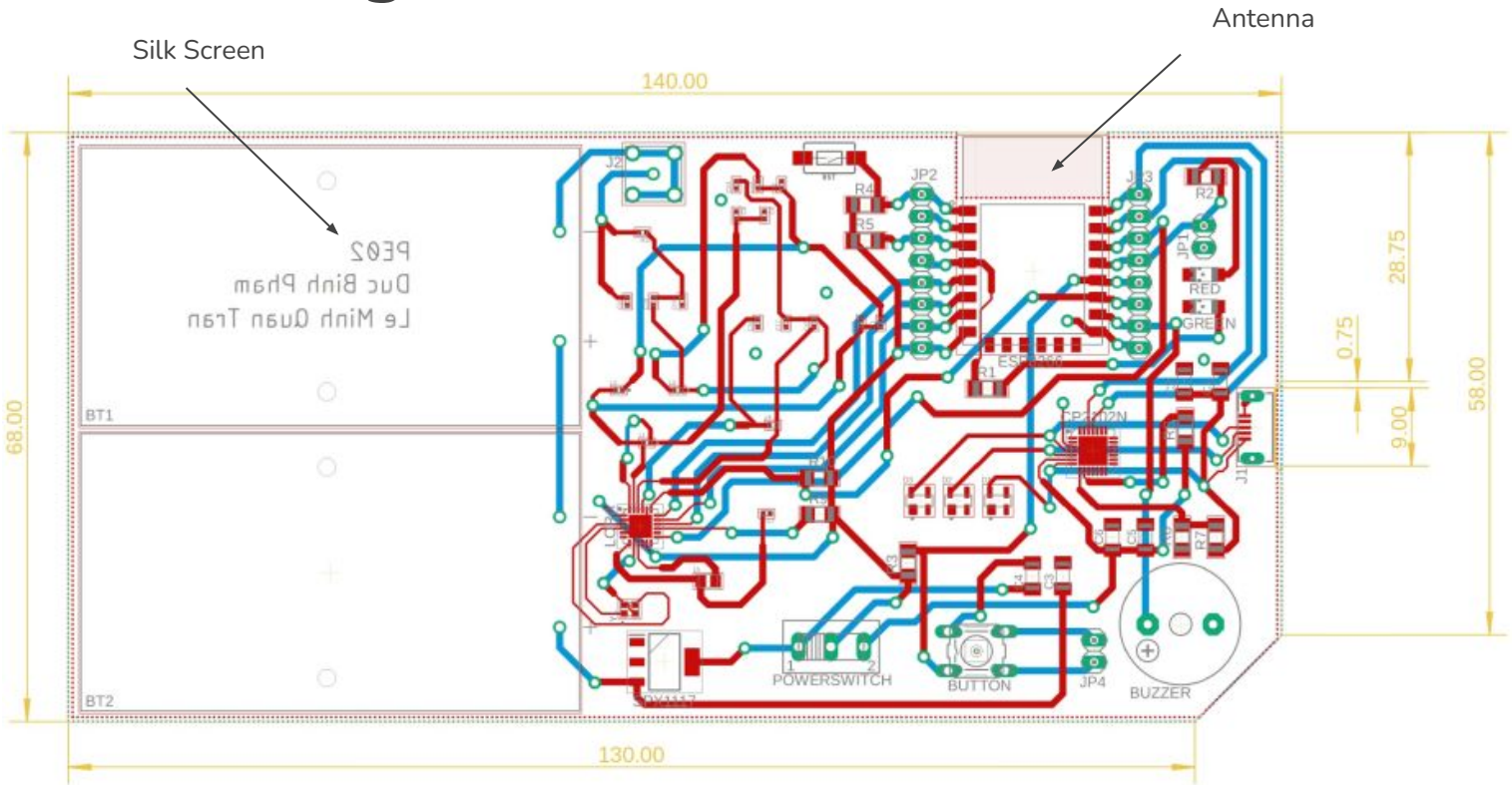
**Application:** Vehicle & Robotics Industries

**Purpose:** Centralized emergency stop for multiple IoT devices

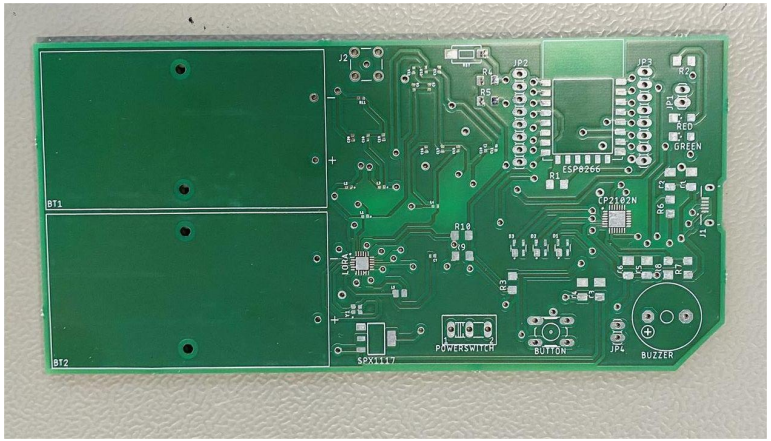
**Control:** Single button or mobile app

**Benefit:** Enhanced safety and control in complex IoT environments

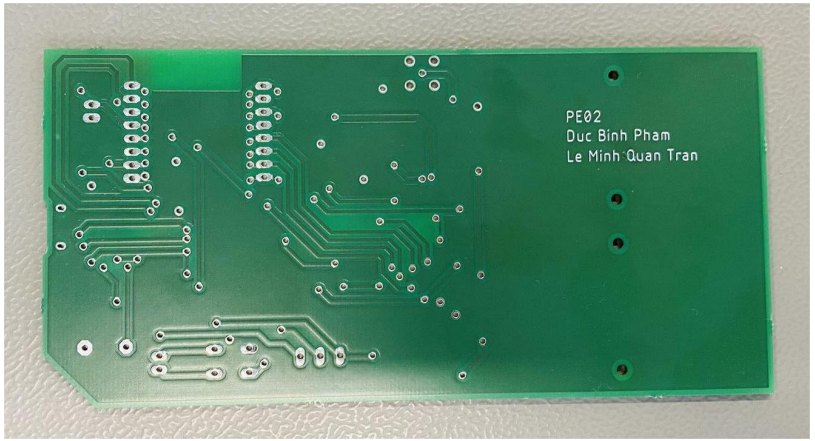
# PCB Design


Silk Screen
Antenna
140.00
68.00
130.00
28.75
0.75
9.00
58.00
PE02
Duc Binh Pham
Le Minh Quan Tran
BT1
BT2
JP2
JP1
RED
GREEN
POWERSWITCH
BUTTON
JP4
BUZZER

# Manufacturing Product

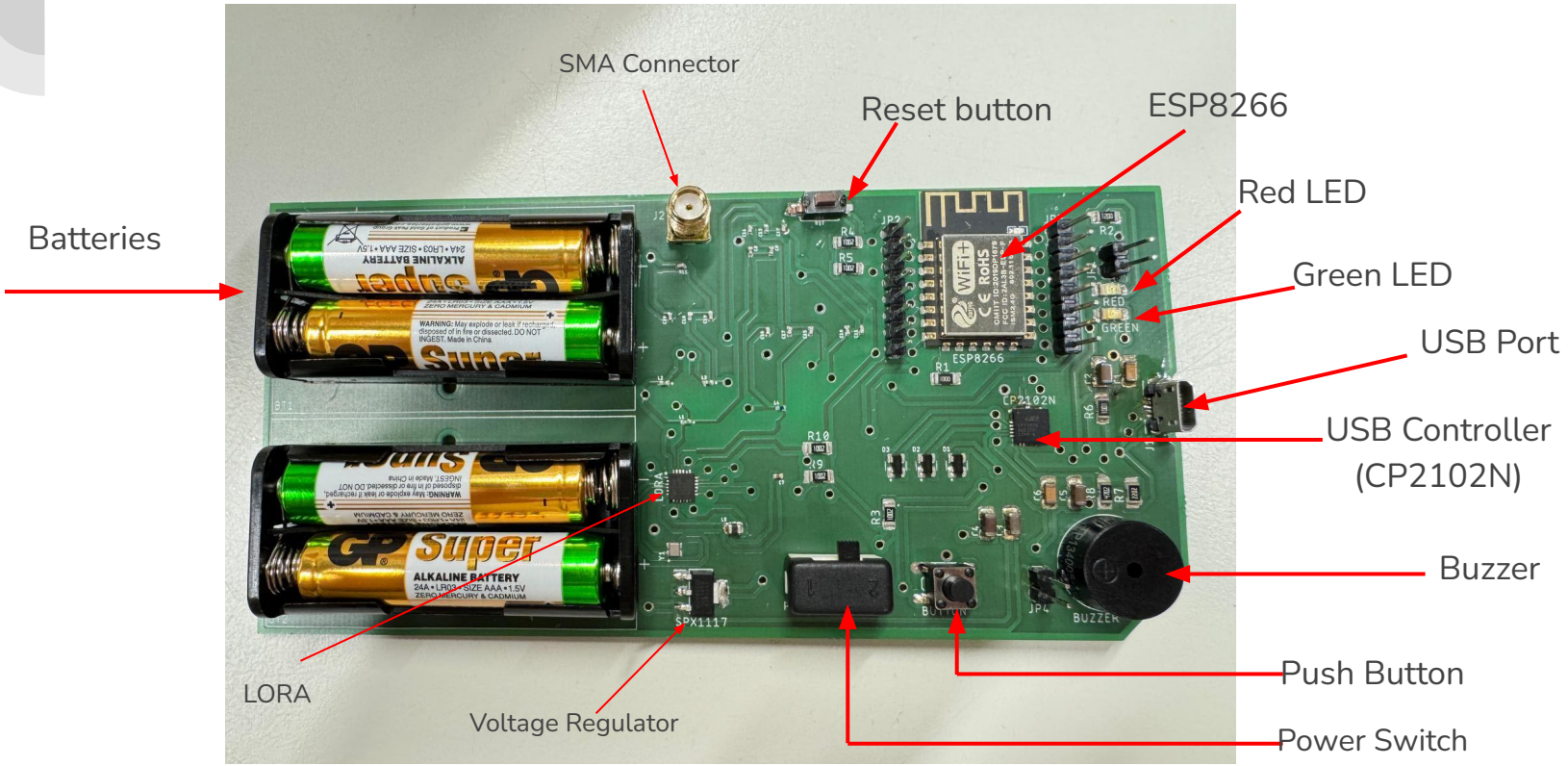



Top Side of PCB Board



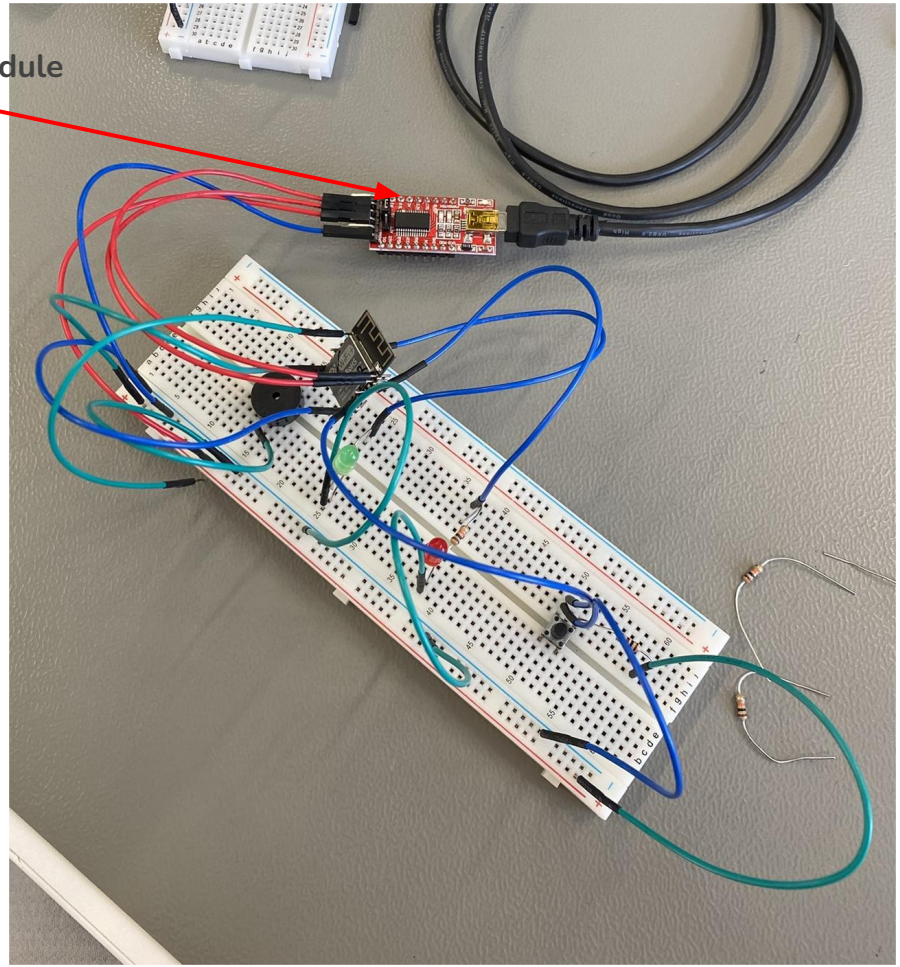

Bottom side of PCB Board

# Parts

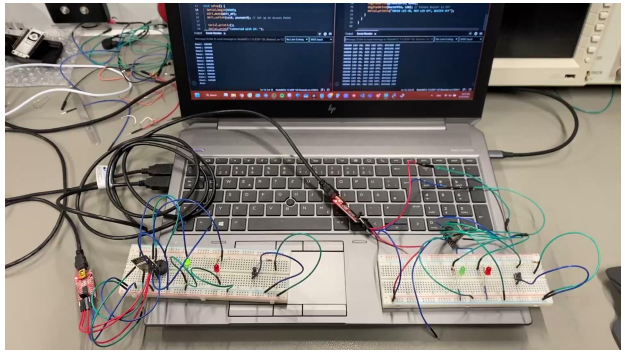

SMA Connector
Reset button
ESP8266
Red LED
Batteries
Green LED
USB Port
USB Controller
(CP2102N)
Buzzer
LORA
Voltage Regulator
Push Button
Power Switch

# Programing

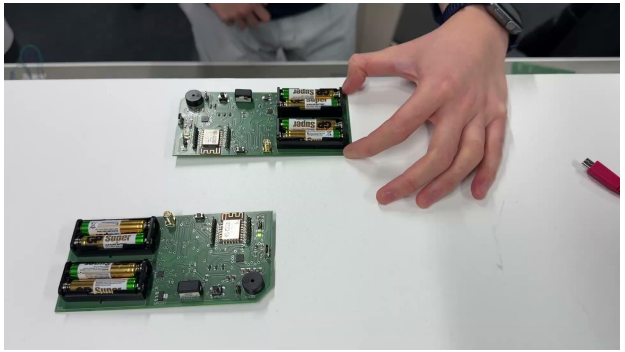
- FDTI FT232RL as bridge to flash the code into ESP
- Programming in Arduino IDE
- Install appropriate FTDI driver



# Result



Video 1: Prototyping with FDTI FT232RL Module



Video 2: Prototyping in PCB

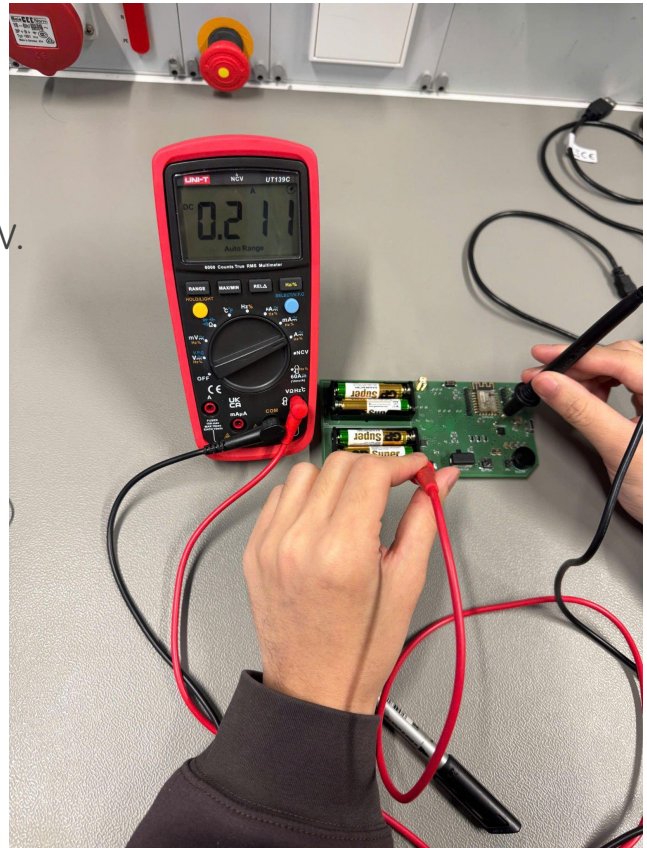
# Power Consumption (of batteries)

V_supply = 5.5V (measured)

I_output = 200mA (measured)

⇒ P_consumed = V_supply * I_ouput = 5.5V * 200mA = 1100 mW.

- **P_consumed = 1100 mW**

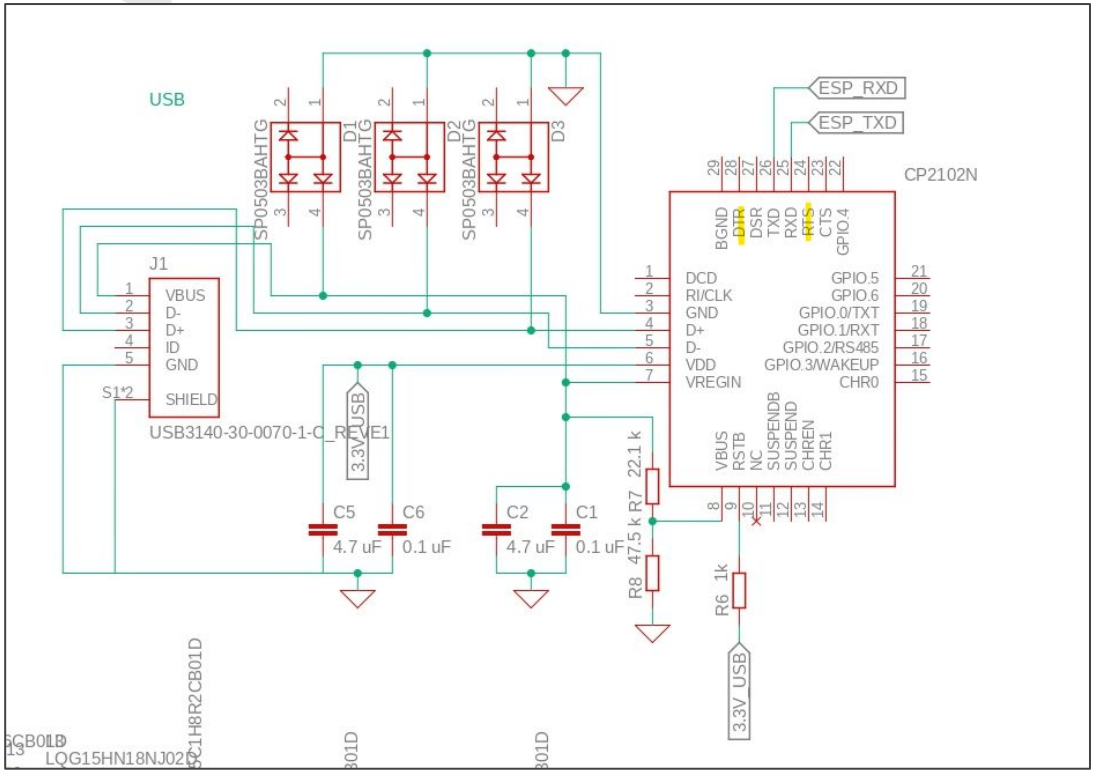


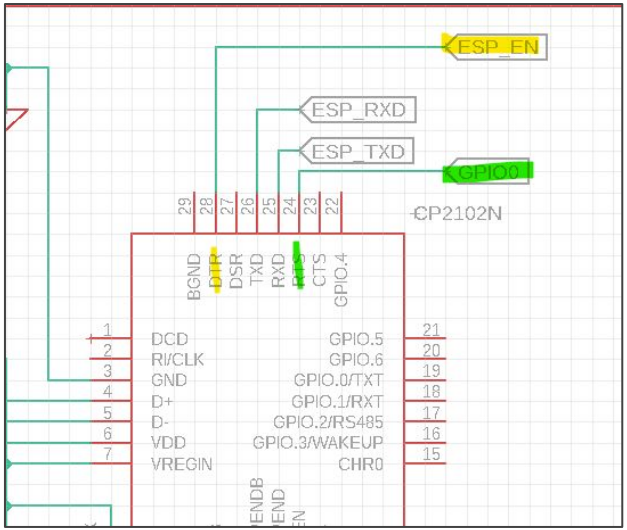

# Battery Life

Battery capacity of AAA Alkaline: 1200 mAh (datasheet)

Battery Life = 1200mAh / 200mA = **6 hours**

# Problem 1: Usb Controller




Fixing !

# Further Improvements

1. **Integration with Other Devices:** Integrate wireless e-stops with other E-Carts or Robots to create a comprehensive safety network.
2. **Further Program Development:** Sleep mode to optimize the battery life
3. **Application of The Lora Module** to increase distance and reliable communication.
4. **Ergonomic Design:** Ensure ergonomic design for comfortable and intuitive operation (Push button, battery level, signal strength,...)

# Live Demo !!!!

# Thank You

Question time!!!