



IF-930 *Internet of Things*

# Weather Monitoring System

**with Real-Time Visualization and Anomaly Detection**

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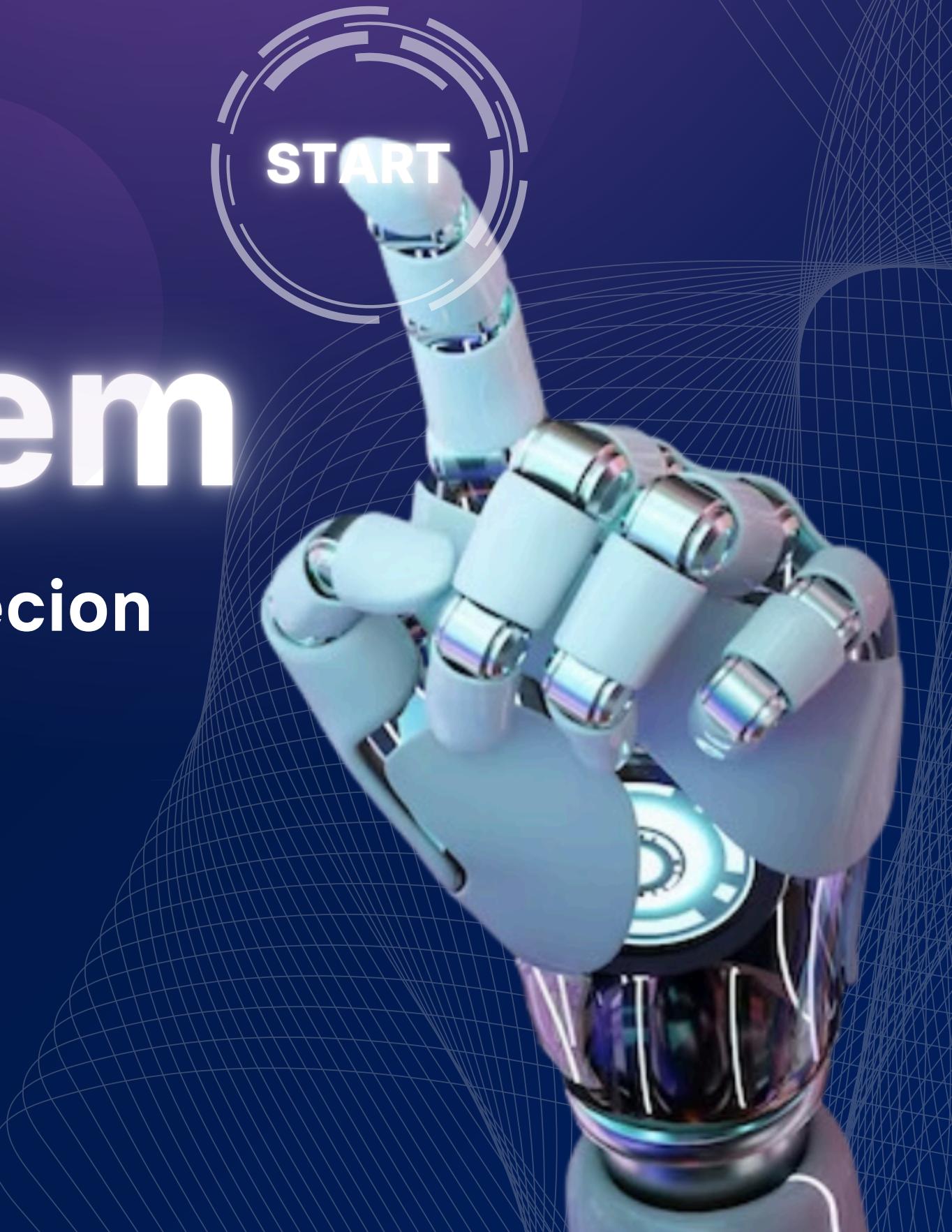
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1322003 - Trestya Asterina Hondro

1322005 - Yobel Yosafat Sibarani

START



# Latar Belakang

Pemantauan cuaca secara real-time menjadi semakin penting di era digital saat ini. Perubahan cuaca yang mendadak dapat berdampak besar pada aktivitas manusia dan infrastruktur, jadi diperlukan sistem yang dapat mendeteksi perubahan cuaca secara cepat dan akurat.



- **Pentingnya Pemantauan Cuaca**

- **Mengurangi risiko akibat perubahan cuaca**

- **Menggunakan deteksi dan respons otomatis dari sensor AHT20 & BMP280**



# Tujuan

01

Membangun sistem yang menampilkan data suhu kelembaban, dan tekanan udara secara *real-time*.

02

Mengembangkan metode untuk mendeteksi anomali pada perubahan suhu mendadak.

03

Mengintegrasikan sensor AHT20 dan BMP280 dengan ESP32, serta menampilkan di LCD dan Grafana.

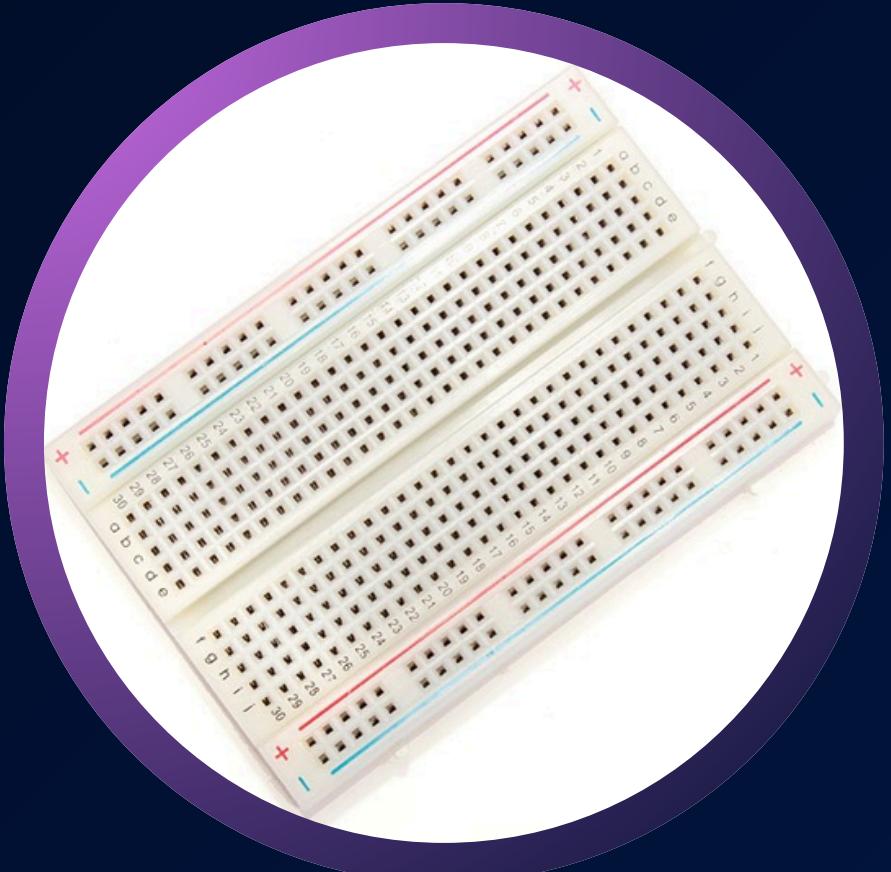
04

Membangun sistem peringatan dengan buzzer aktif yang dapat berbunyi.





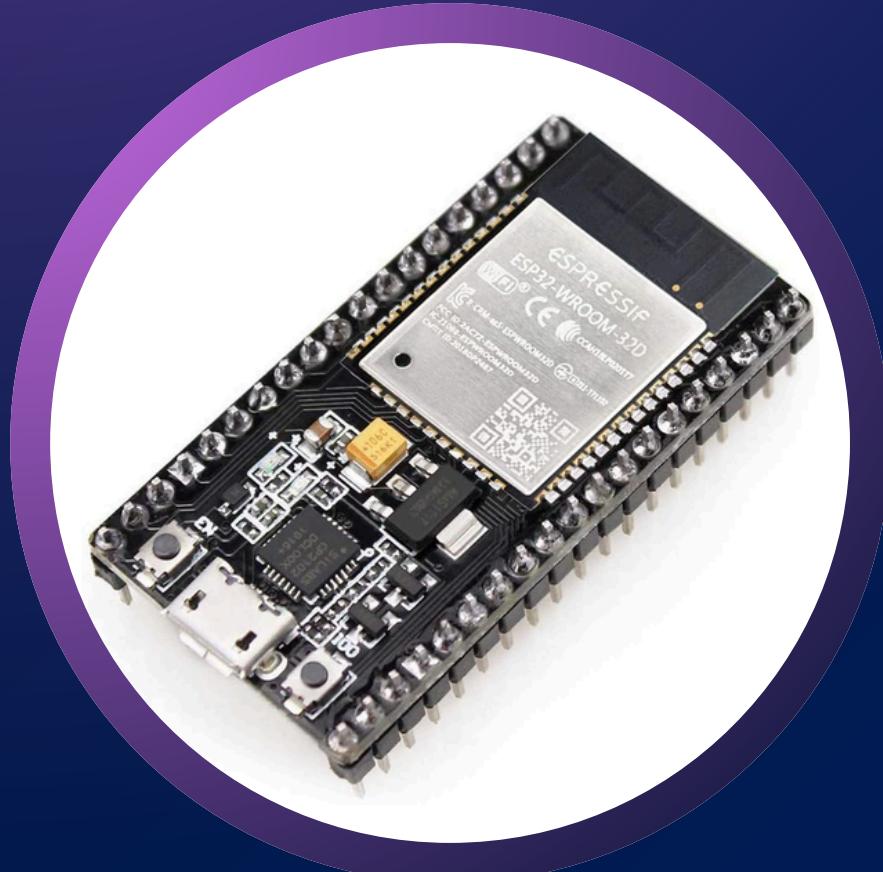
# Perangkat



01 Breadboard



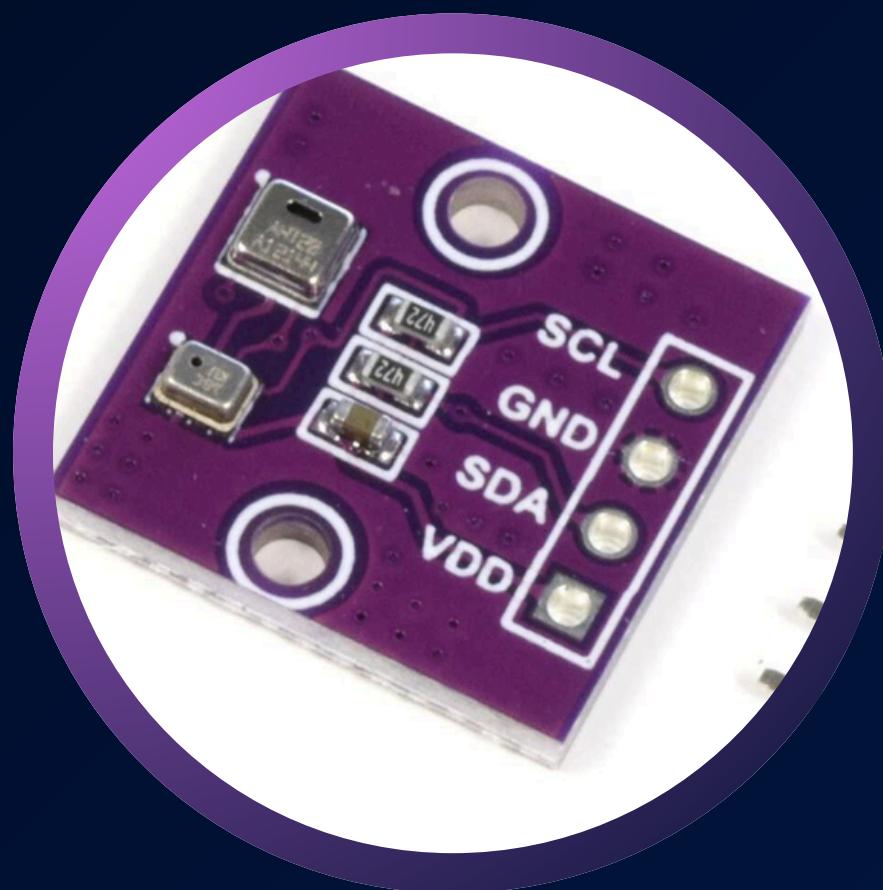
02 Kabel Jumper



03 ESP32



# Perangkat



04 AHT20 + BMP280



05 Buzzer Aktif

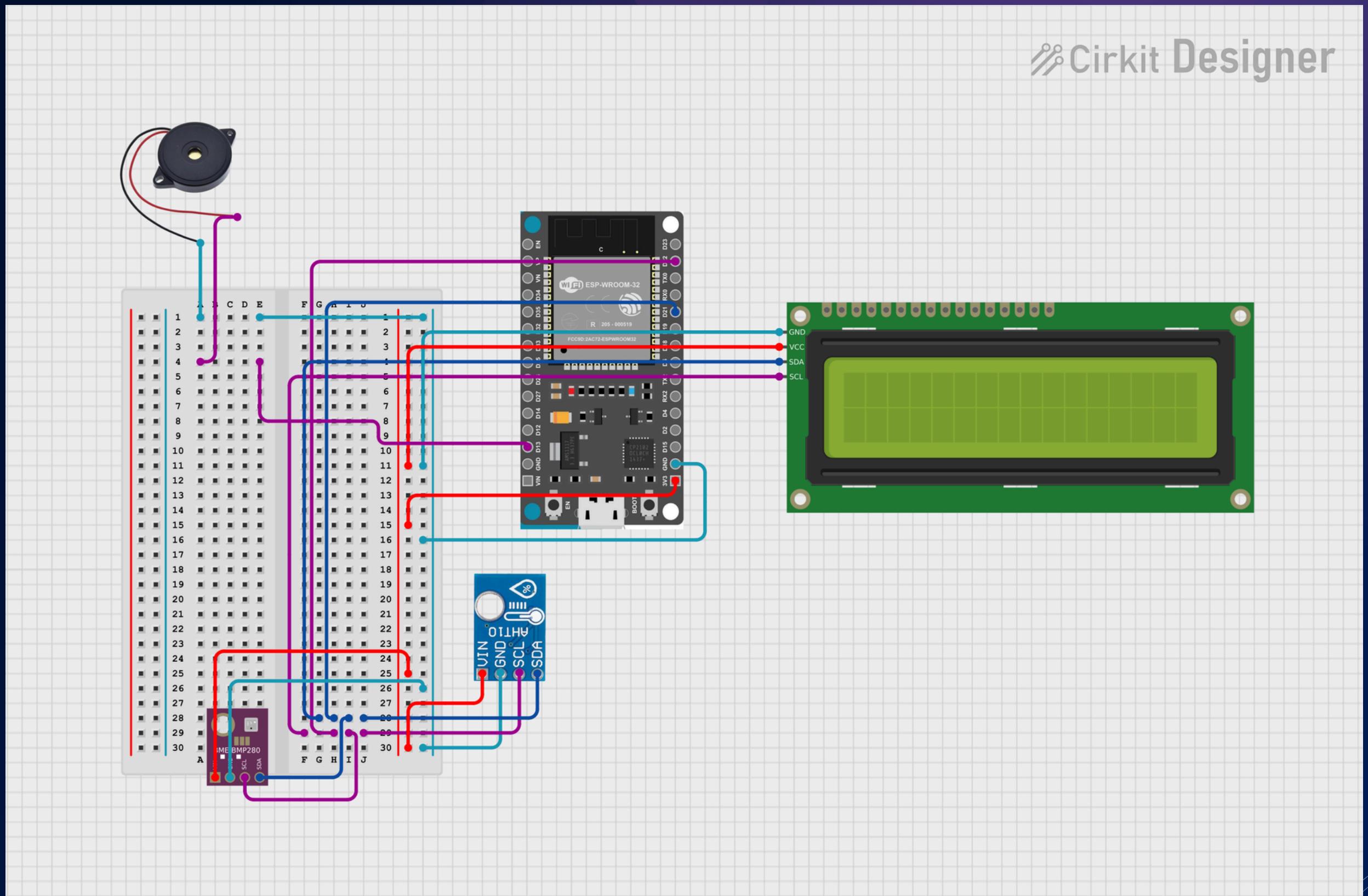


06 LCD I2C 16x2



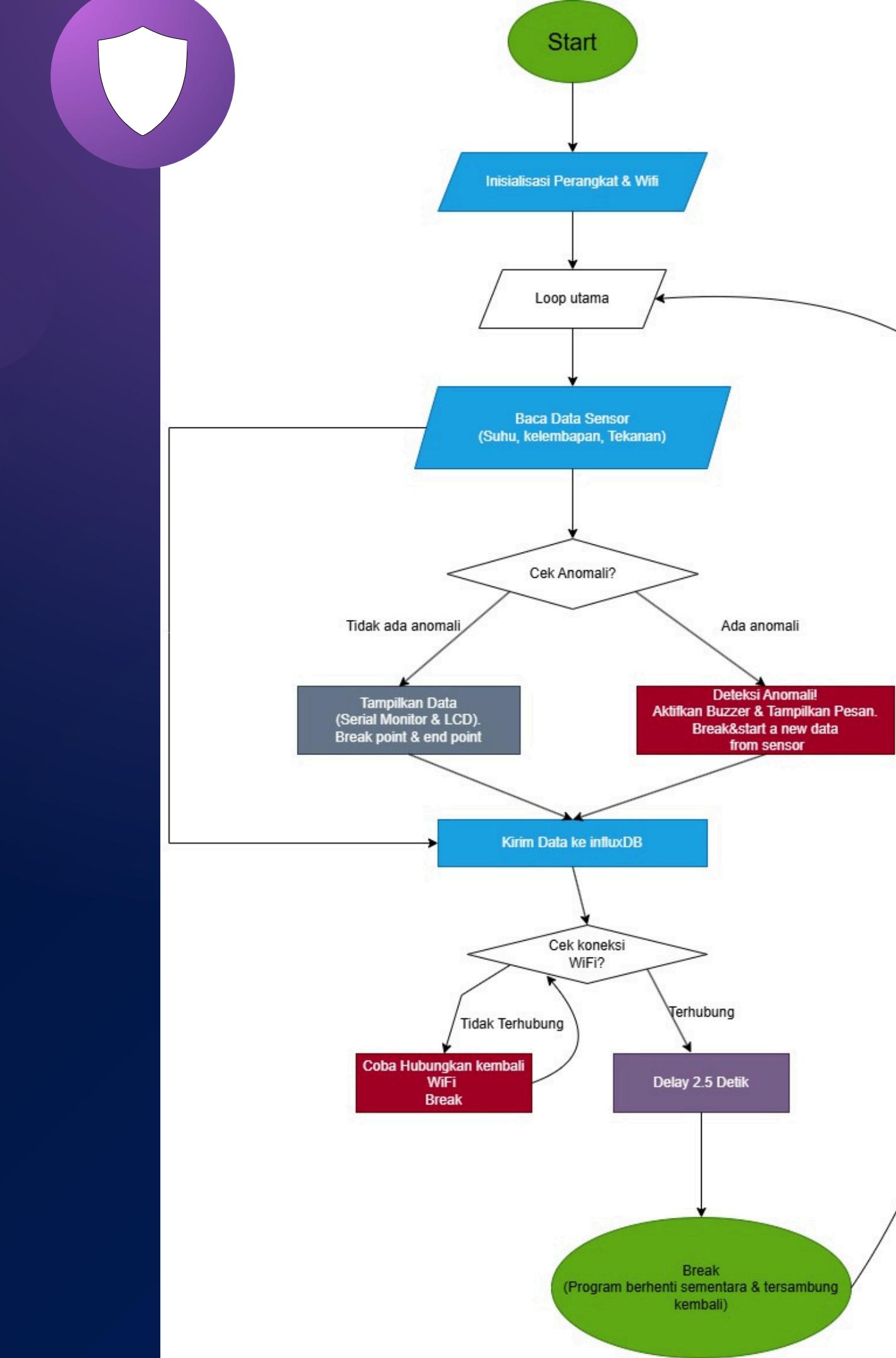
# Rangkaian

# Cirkit Designer



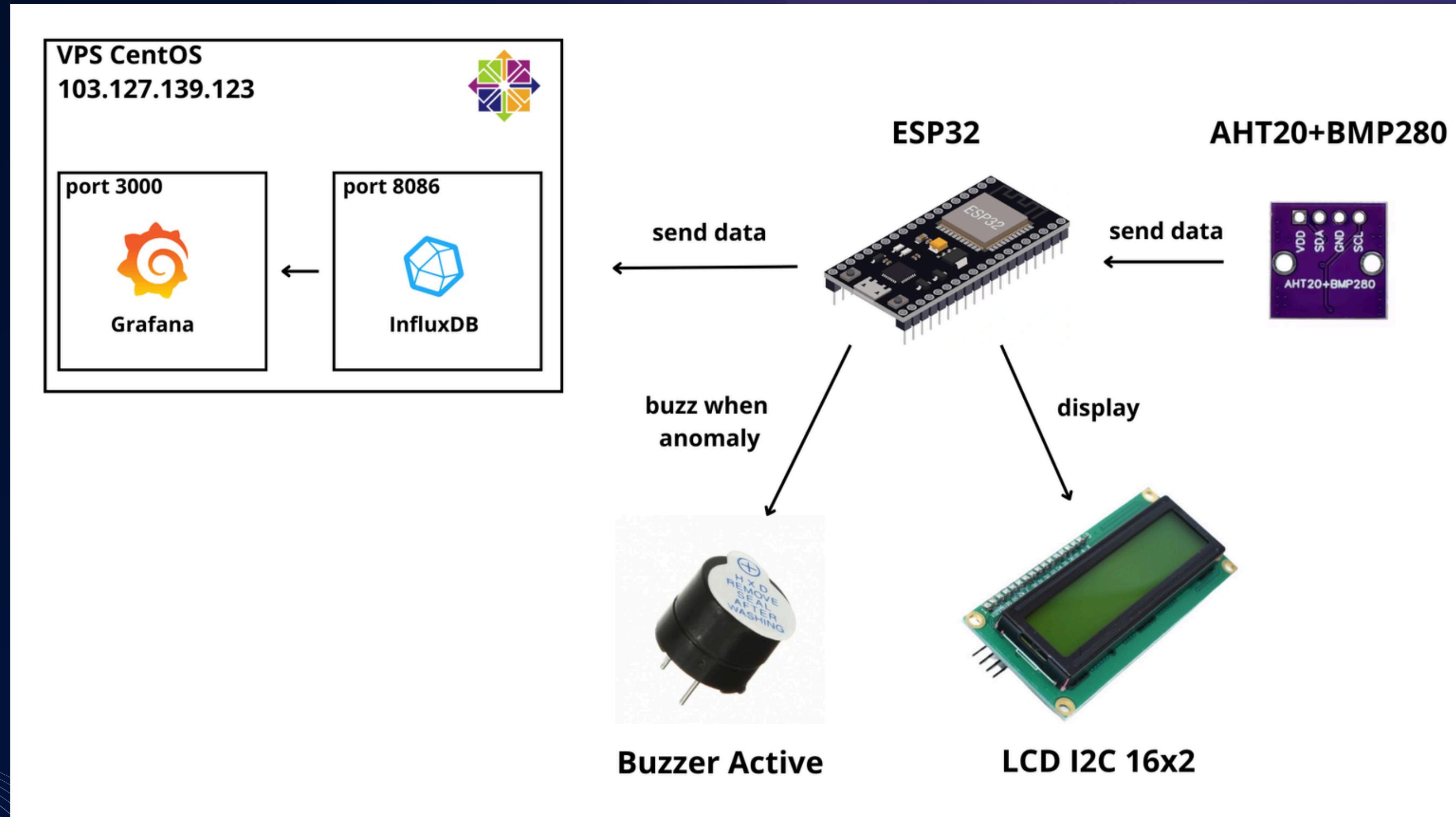


# Flowchart





# Diagram

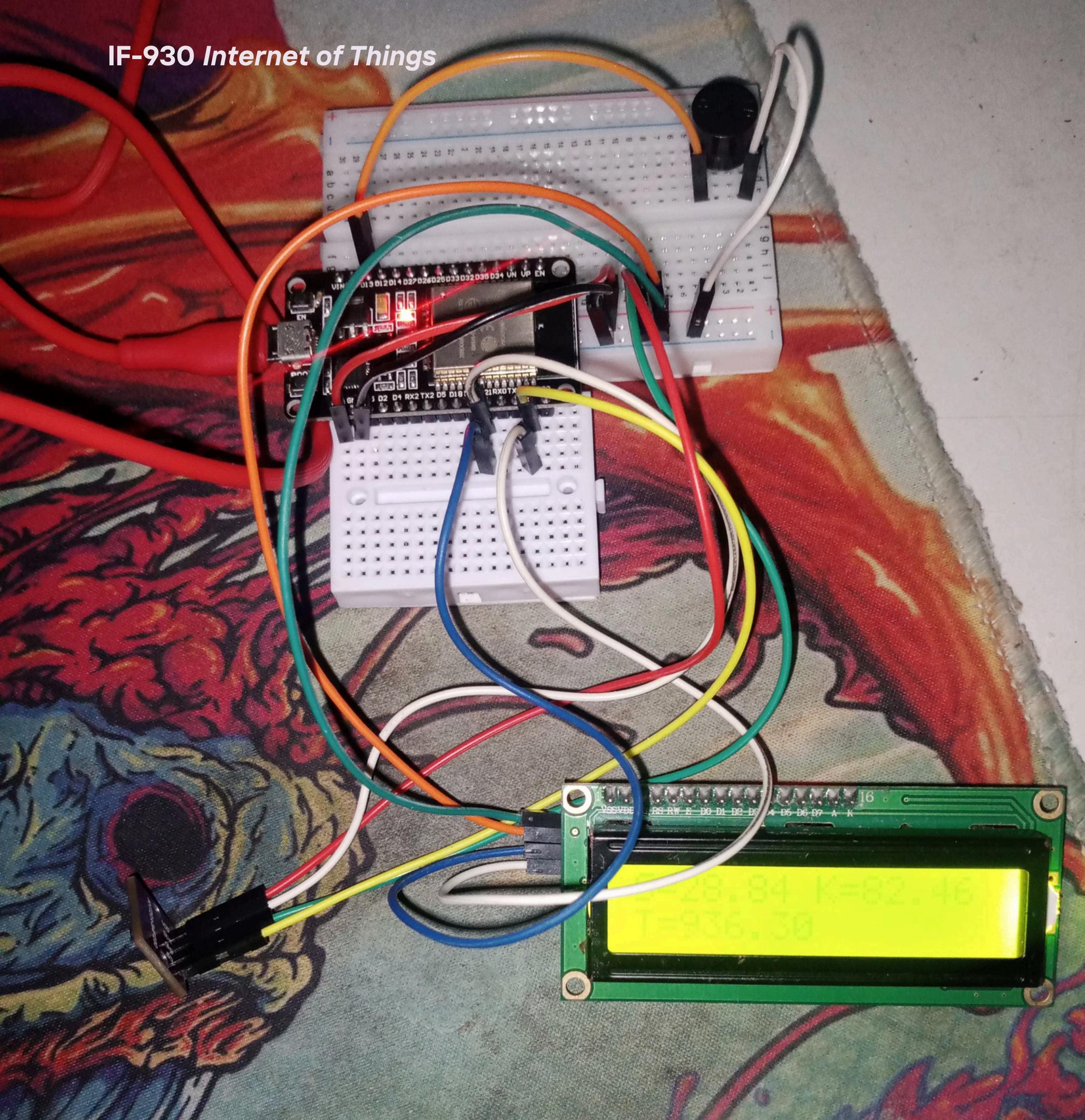




# Hasil

```
06:30:03.894 -> AHT20 - Temperature: 26.91°C, Anomaly Temperature: 0
06:30:03.894 -> AHT20 - Humidity:84.04%, Anomaly Humidity: 0
06:30:03.894 -> Ø BMP280 - Pressure: 938.88 hPa, Anomaly Pressure: 0
06:30:03.894 -> -----
06:30:06.531 -> AHT20 - Temperature: 26.89°C, Anomaly Temperature: 0
06:30:06.531 -> AHT20 - Humidity:84.05%, Anomaly Humidity: 0
06:30:06.531 -> Ø BMP280 - Pressure: 938.84 hPa, Anomaly Pressure: 0
06:30:06.531 -> -----
06:30:09.165 -> AHT20 - Temperature: 26.90°C, Anomaly Temperature: 0
06:30:09.165 -> AHT20 - Humidity:84.06%, Anomaly Humidity: 0
06:30:09.165 -> Ø BMP280 - Pressure: 938.88 hPa, Anomaly Pressure: 0
06:30:09.216 -> -----
```





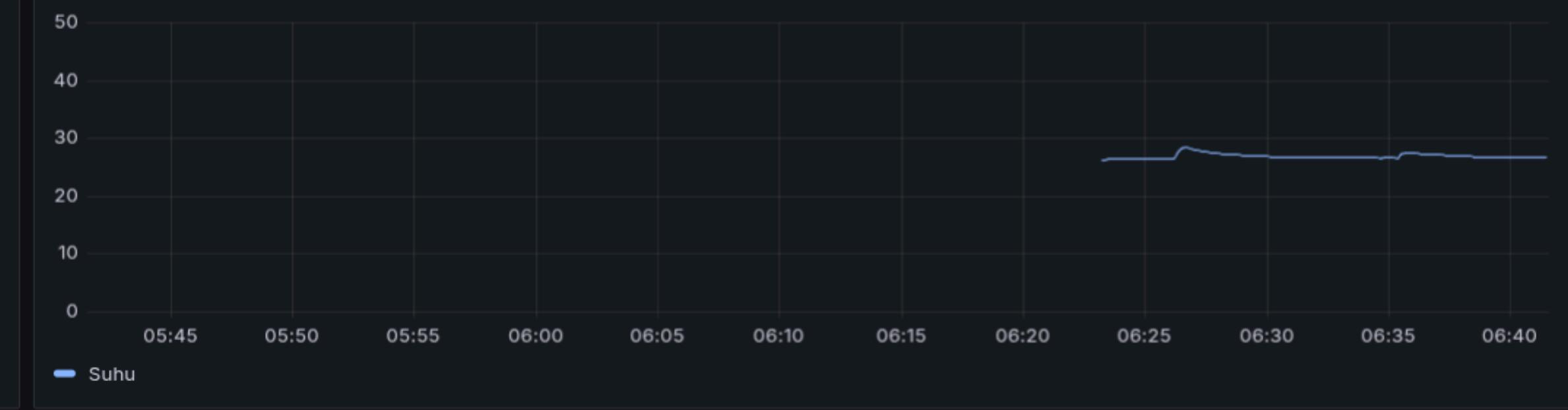
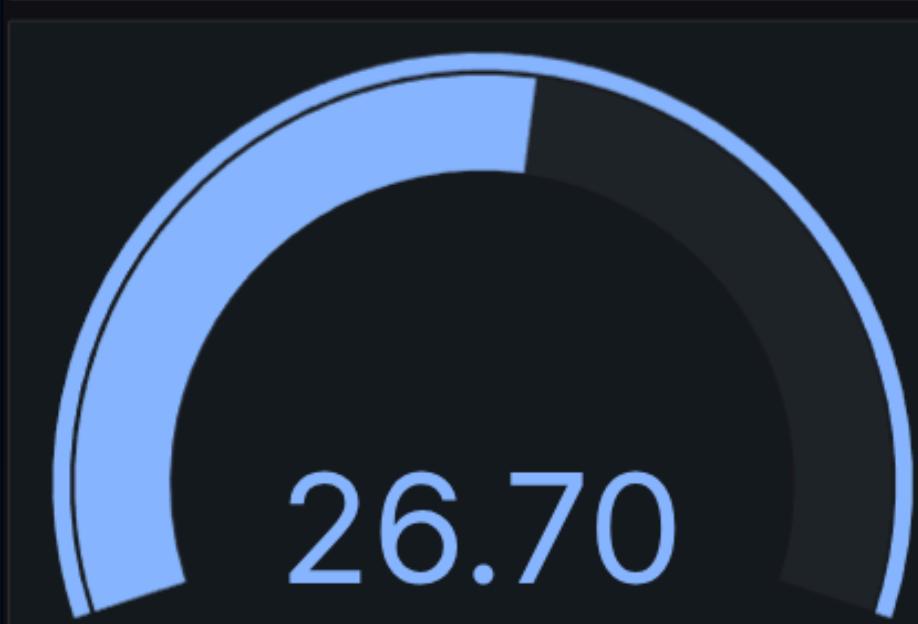
# Hasil





# Hasil

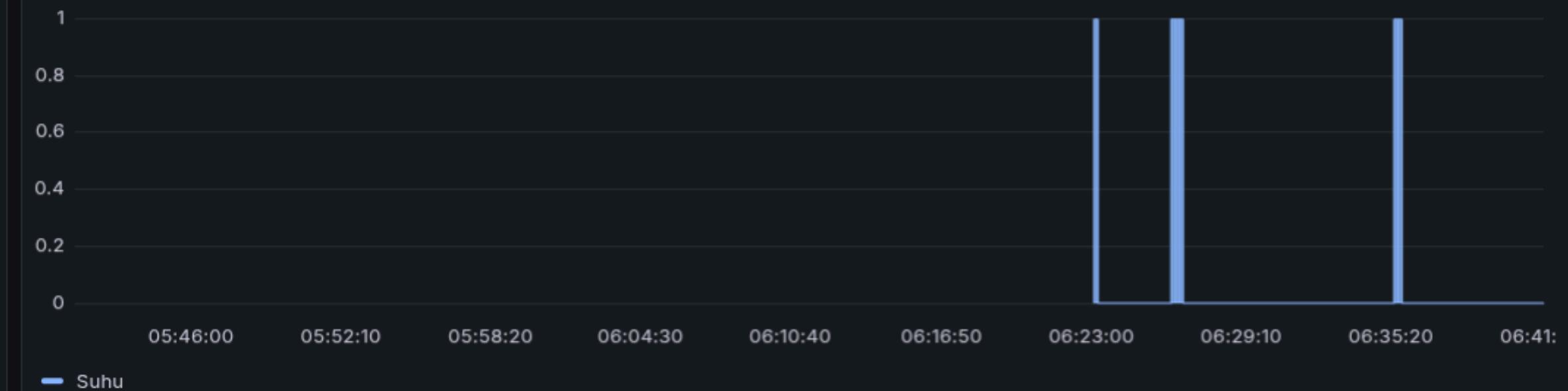
SUHU



Anomali Suhu

0

Anomali Suhu





# Thank You!

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