



# NEST HACKATHON

P R E S E N T A T I O N



TheyHack Team

# About Us

We are a passionate team of developers, focused on building smart, efficient, and secure systems. With a shared interest in AI, IoT, and embedded technology, we came together to create an intelligent power and security solution tailored for high-risk environments in server rooms and call centers. Our goal is to :

**Save Energy**

**Increase  
Equipment life**

**Enhance  
Protection**

# Problems in Current Server Rooms

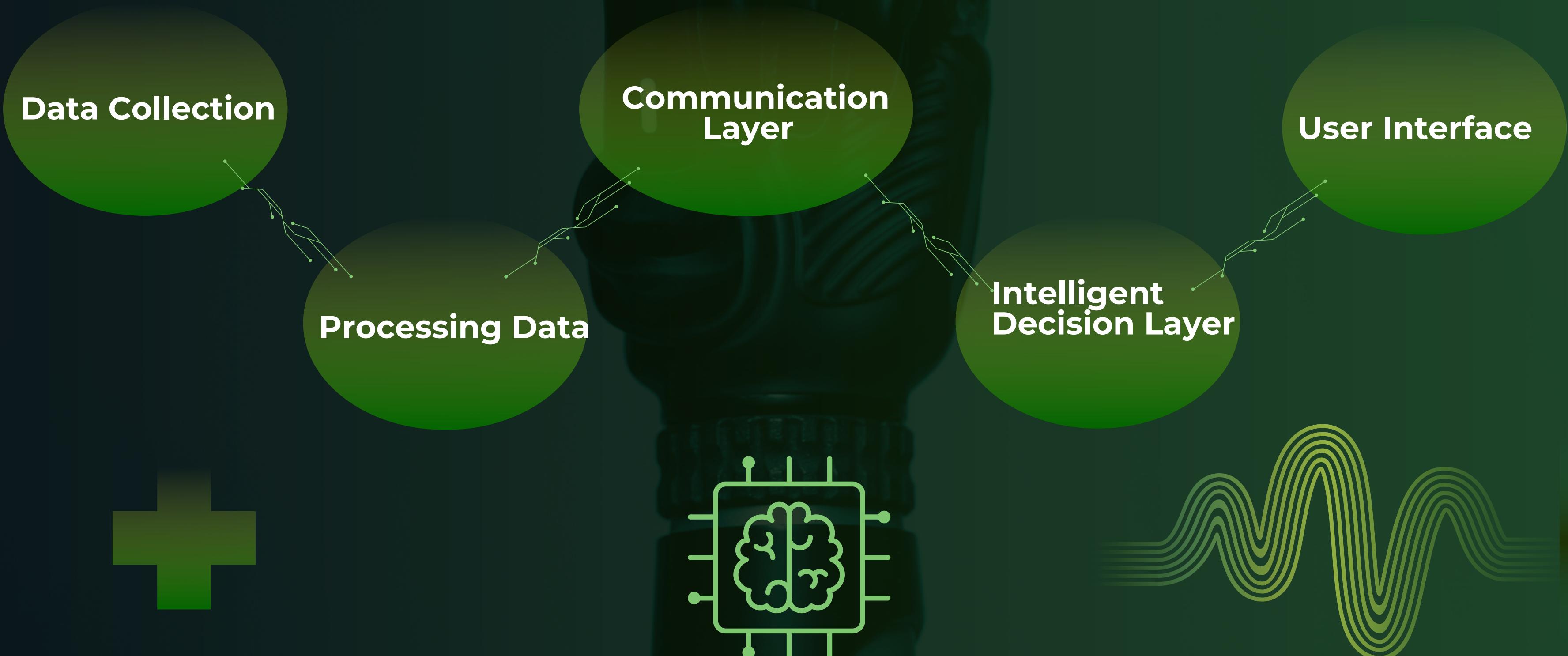
- OVERHEATING
- ENERGY WASTE FROM FANS ALWAYS ON
- POSSIBILITY OF THEFT
- LACK OF REAL-TIME ALERTS



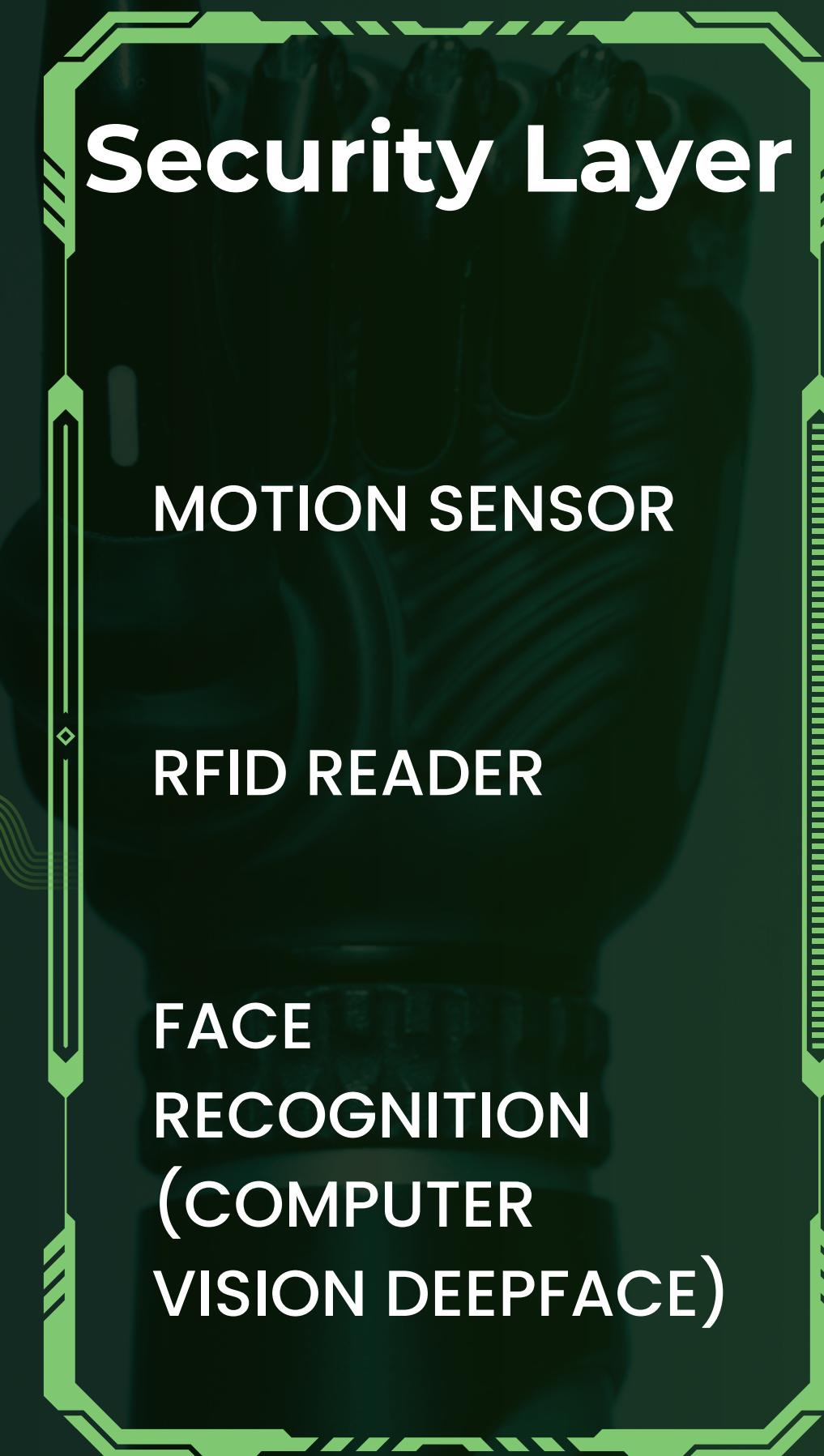
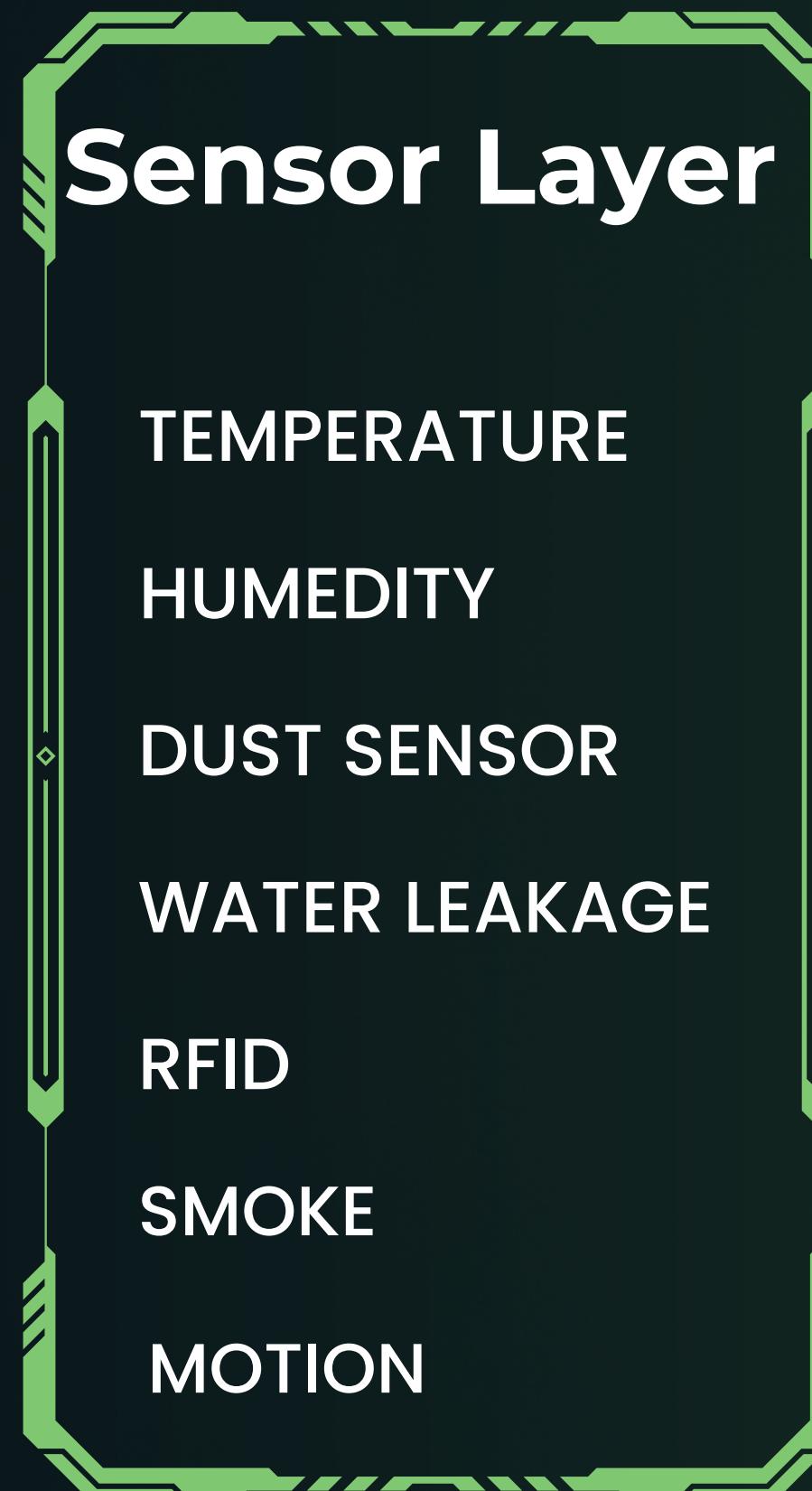
# Our Solution Overview



# General Structure



# Data Collection



# Processing Data

ESP32 + ARDUINO UNO

## Microcontroller Layer

ESP32 + ARDUINO UNO

COLLECTS SENSOR & SECURITY DATA

CONTROLS DEVICES (LCD, FAN, ETC.)

PUBLISHES DATA TO MQTT BROKER

[LCD Display]  
(Local info)

[Fan / Relay Control]  
(Based on AI decision logic)

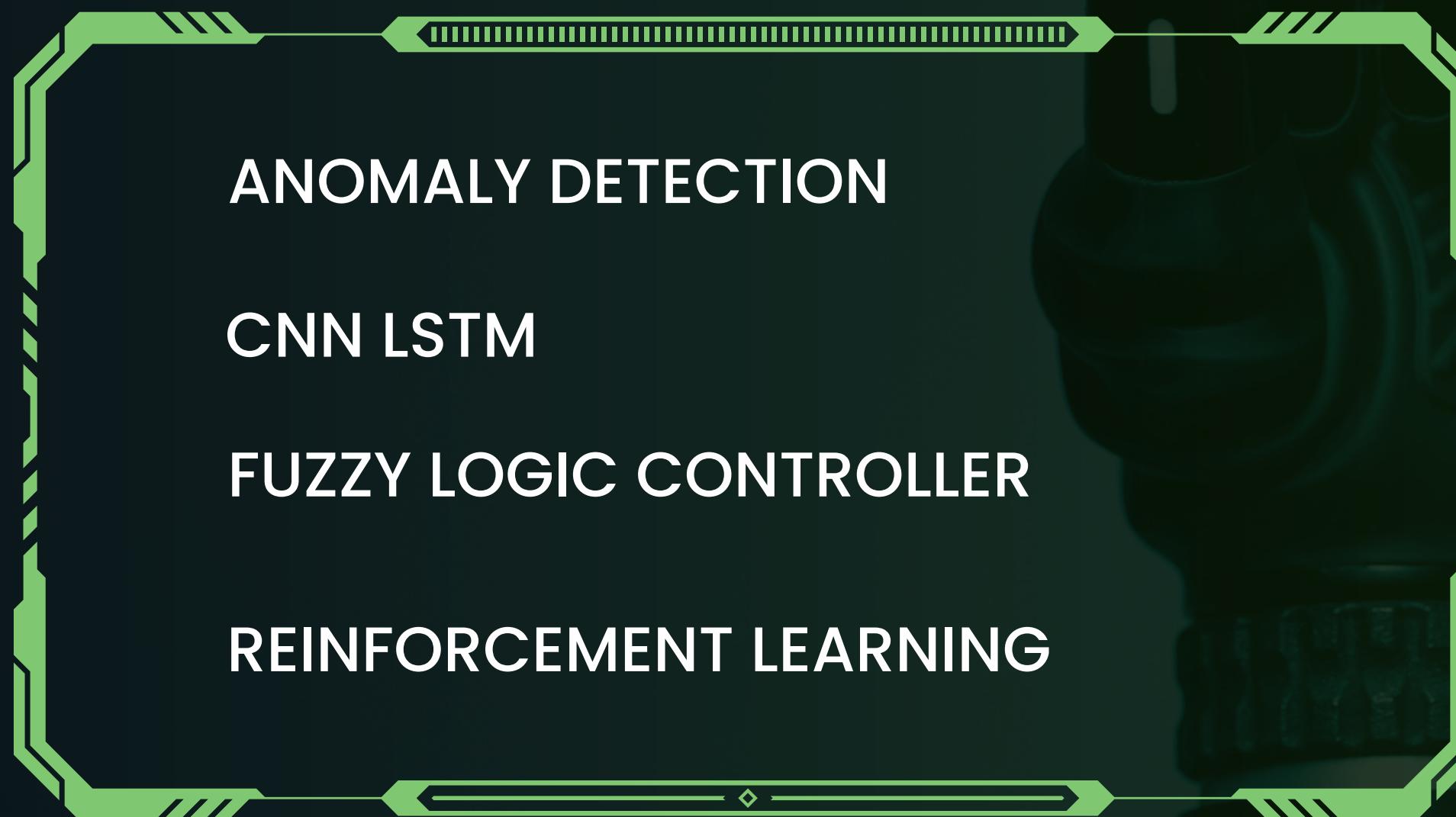
# Communication Layer

## [MQTT Protocol Layer]

ACTS AS A BRIDGE FOR COMMUNICATION  
ESP32 PUBLISHES → BROKER → DASHBOARD  
TEMPERATURE, HUMIDITY, ETC.

# Intelligent Decision Layer

[Alrticial intelligence]



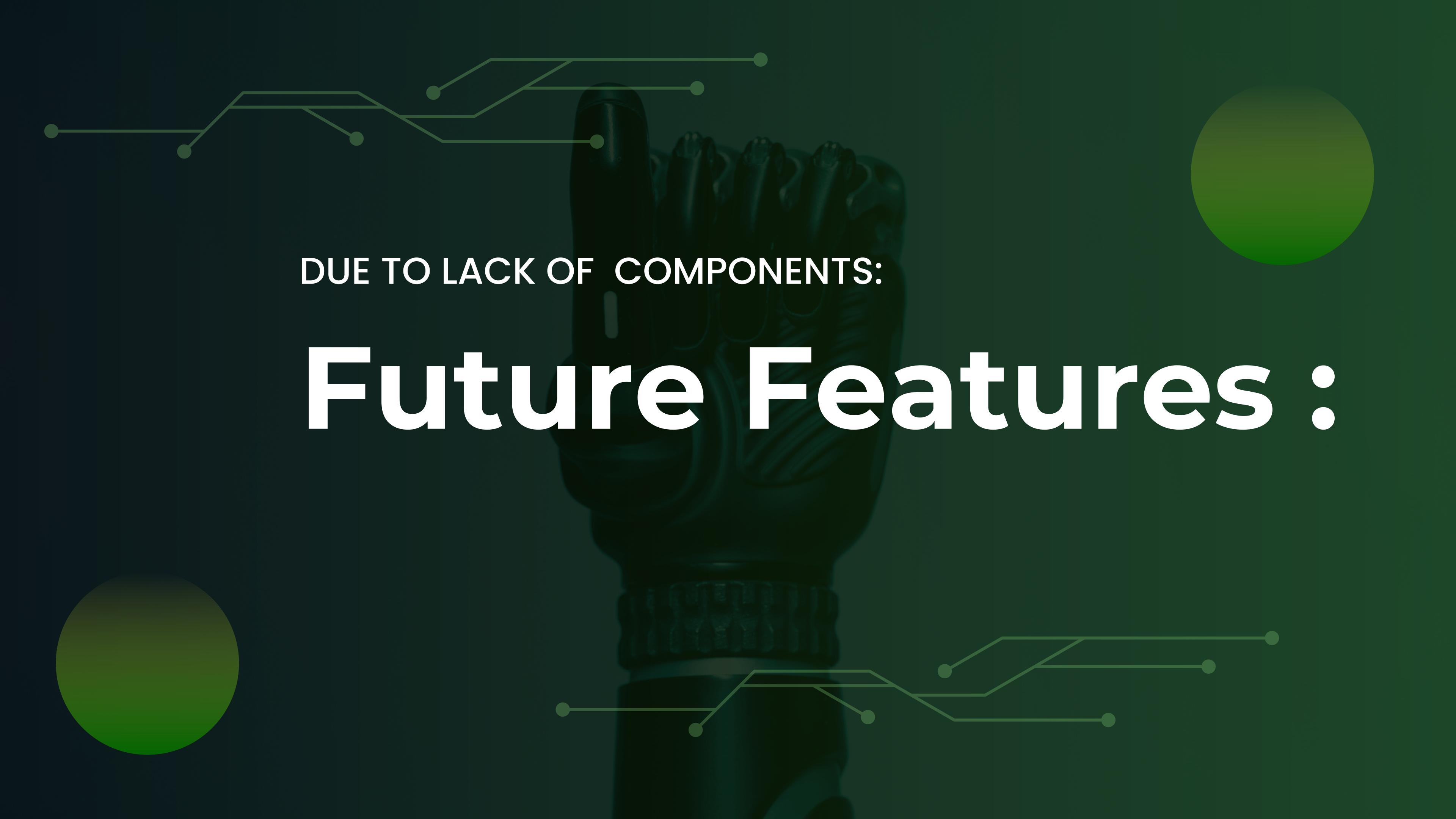
# User Interface

## [Web Dashboard]

SHOWS REAL-TIME DATA & ALERTS

REMOTE MONITORING & CONTROL





DUE TO LACK OF COMPONENTS:

# Future Features :

# Dust Sensor Integration

GP2Y1010AUOF OR DSM501A



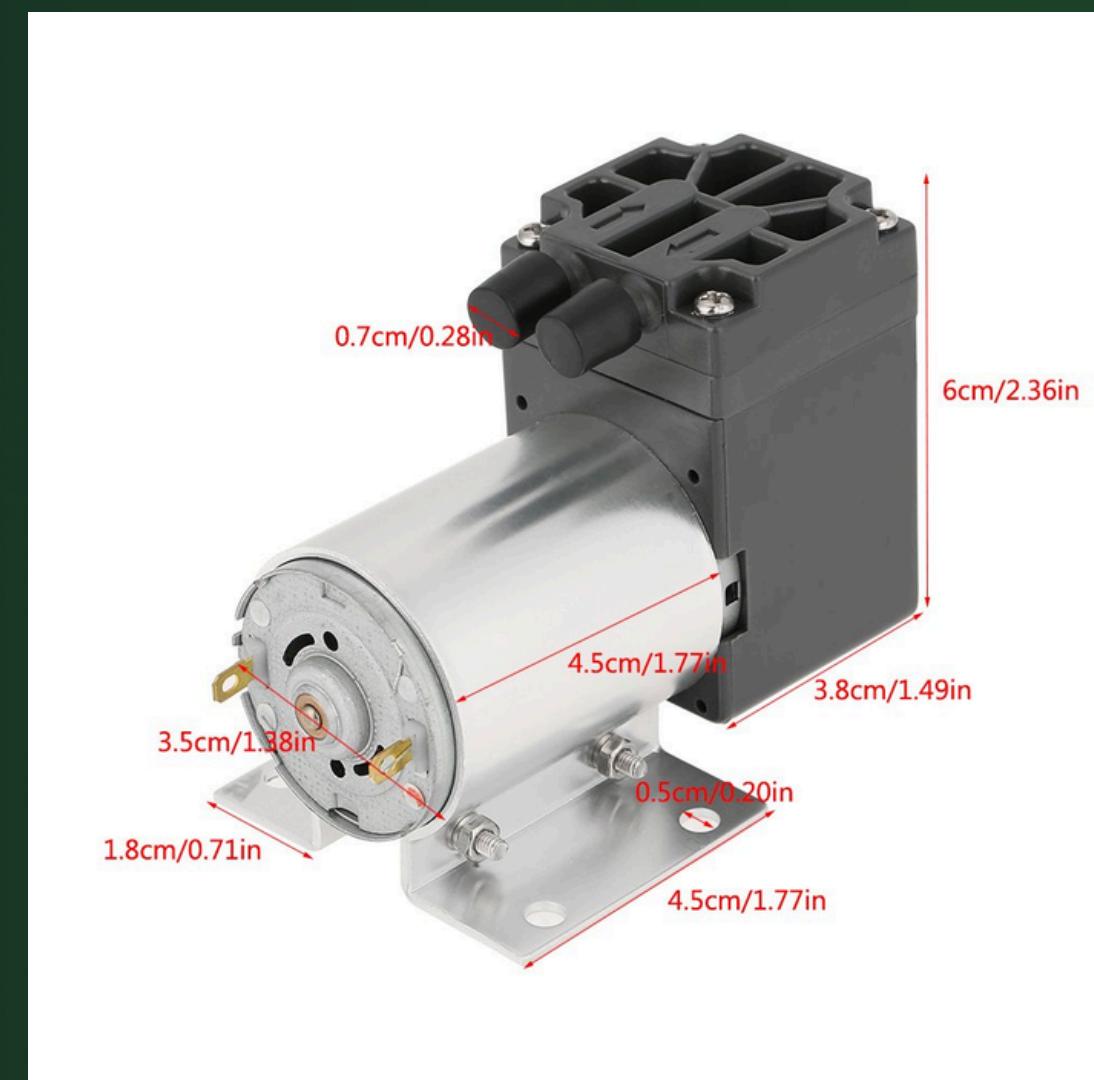
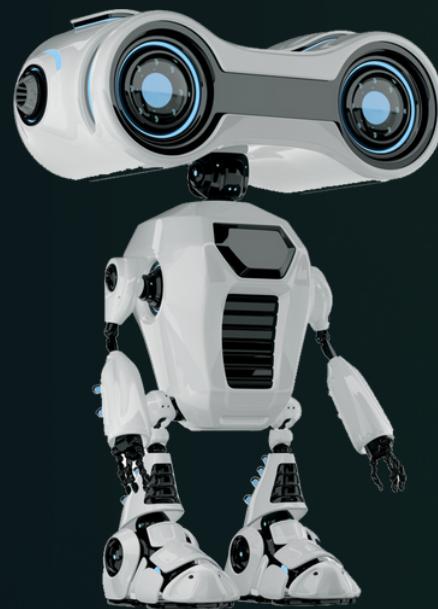
# Advanced Water Leakage Detection

YL-83 OR WATER LEVEL SENSOR MODULE



# Smart Vacuum cleaner for Water

MINI VACUUM PUMP OR SMART WATER PUMP SYSTEM

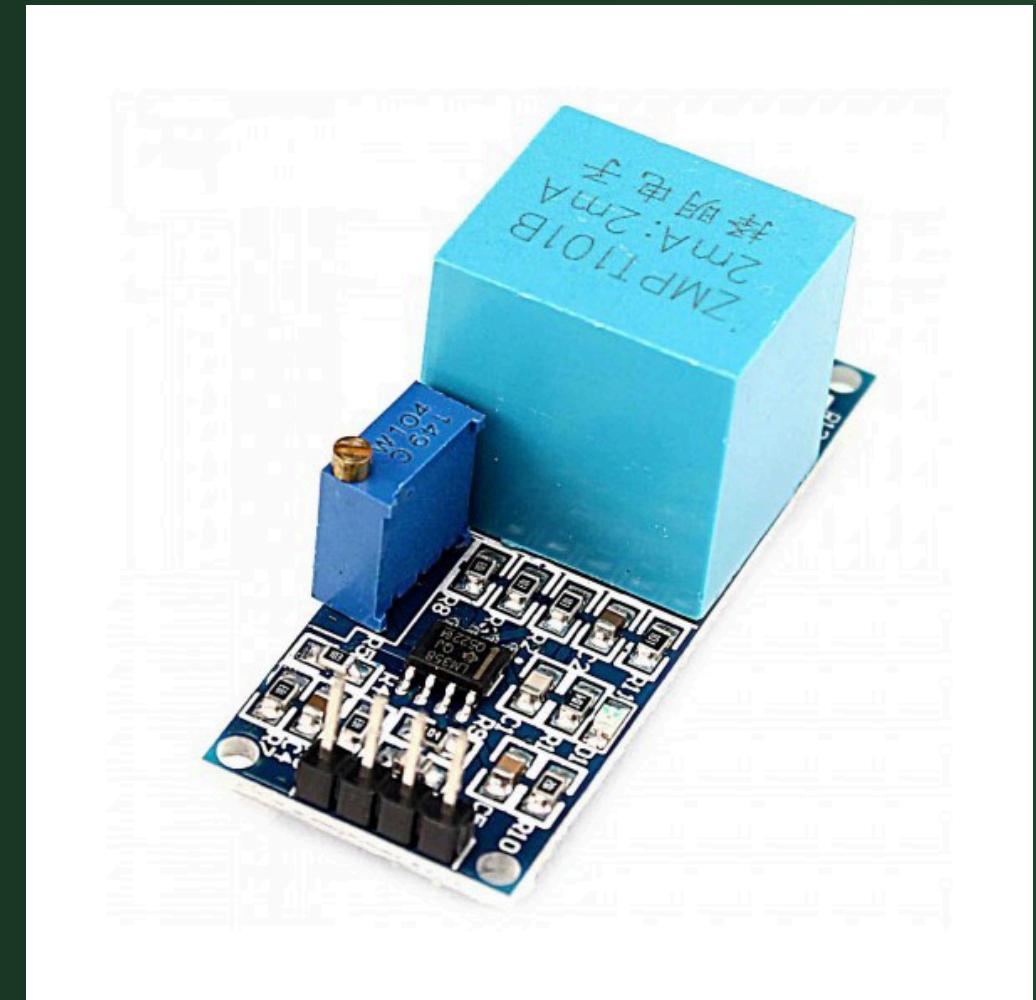


# Electrical Safety Monitoring

ZMPT101B VOLTAGE SENSOR

TO DETECT UNSAFE CONDITIONS LIKE:

- OVERVOLTAGE
- UNDERVOLTAGE (BROWNOUT)
- POWER SPIKES OR DROPS
- ABNORMAL CURRENT DRAW



# Fan Speed Control



ENABLE DYNAMIC FAN SPEED CONTROL BASED ON REAL-TIME CONDITIONS (TEMPERATURE, DUST, ETC.) INSTEAD OF SIMPLE ON/OFF SWITCHING.



# Thank You!