

Automated Firefighting Robot

IoT System for Fire Safety

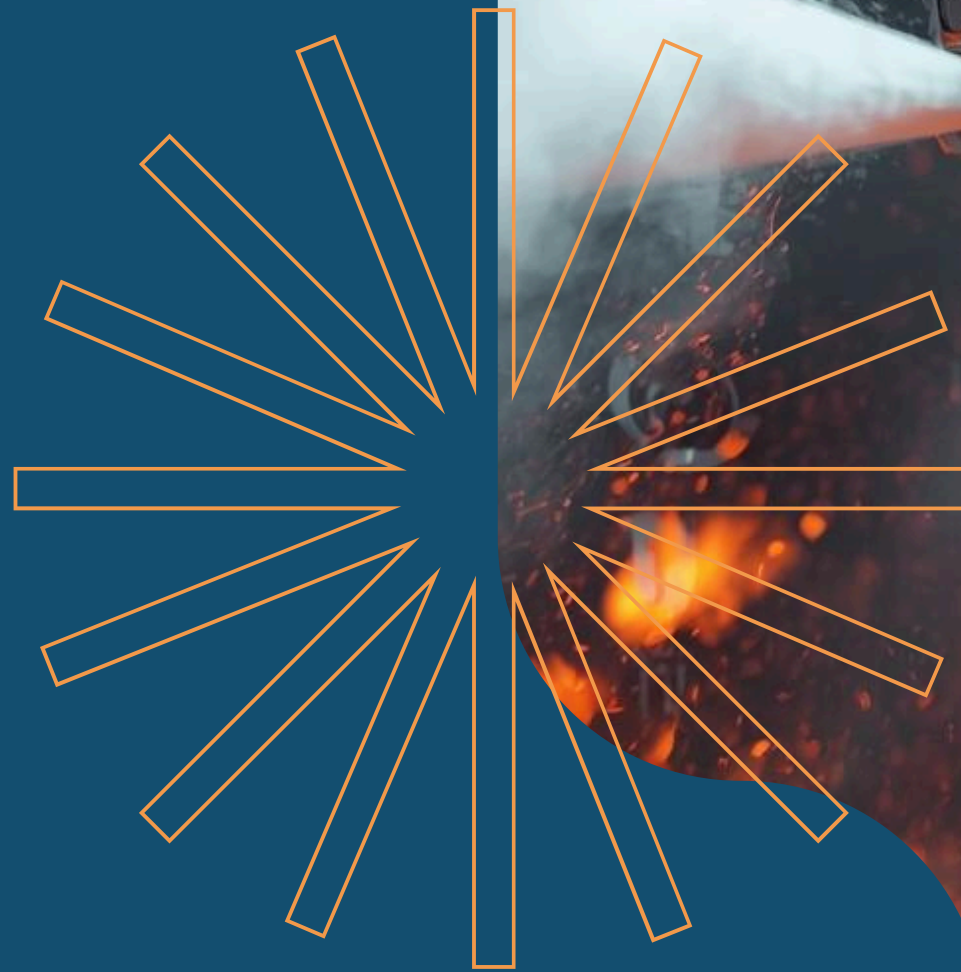
PRESENTED TO
B.Tech IoT BC 2A

PRESENTED BY
Vikhyat Mishra

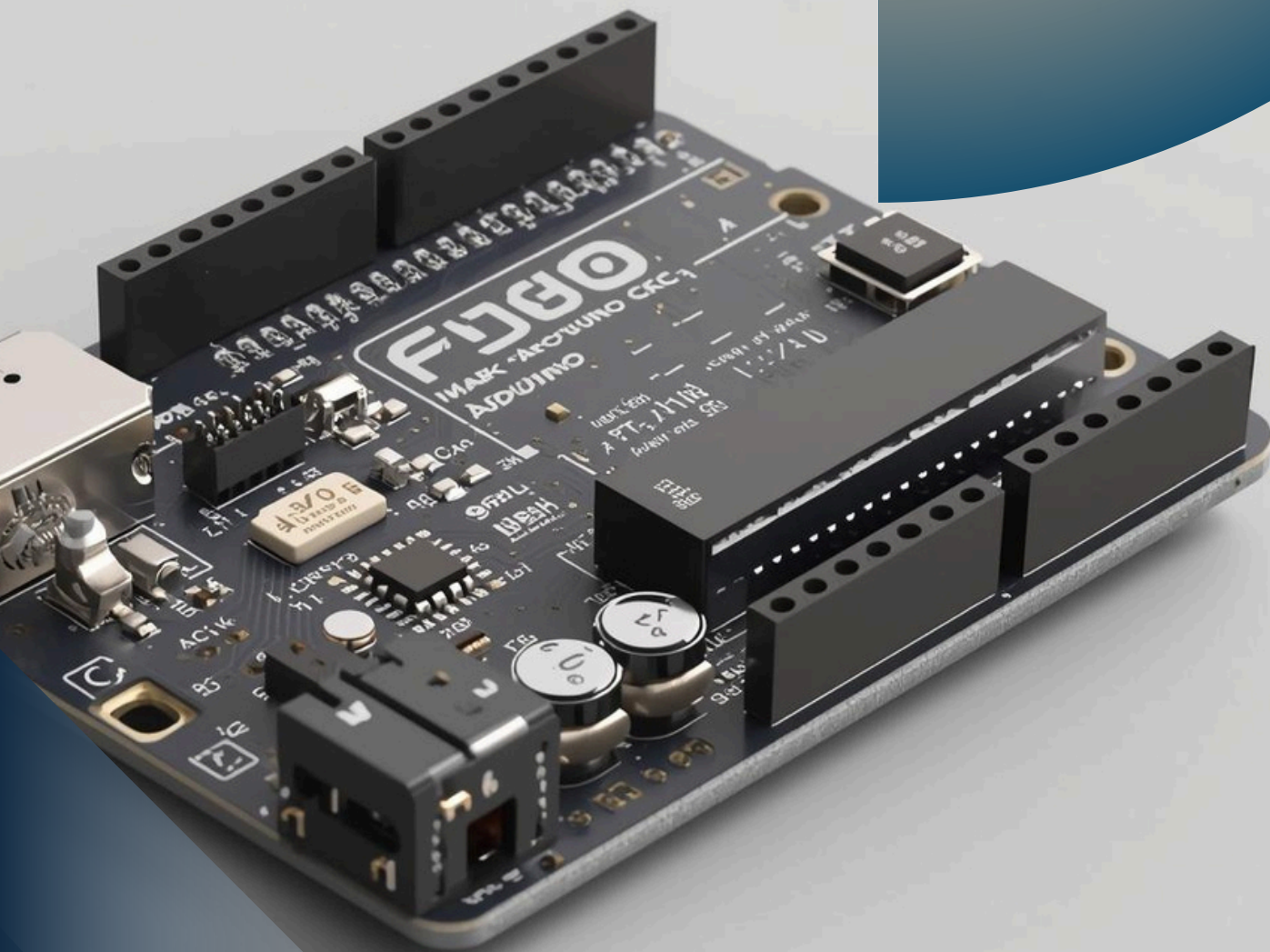


Introduction to Automation

Fire accidents lead to **devastating losses**. Automated firefighting robots enhance **safety and efficiency**, allowing for quicker responses while protecting human lives from hazards.



Key Components



ARDUINO UNO

The brain of the robot, controlling all operations and sensor data.

FLAME SENSOR

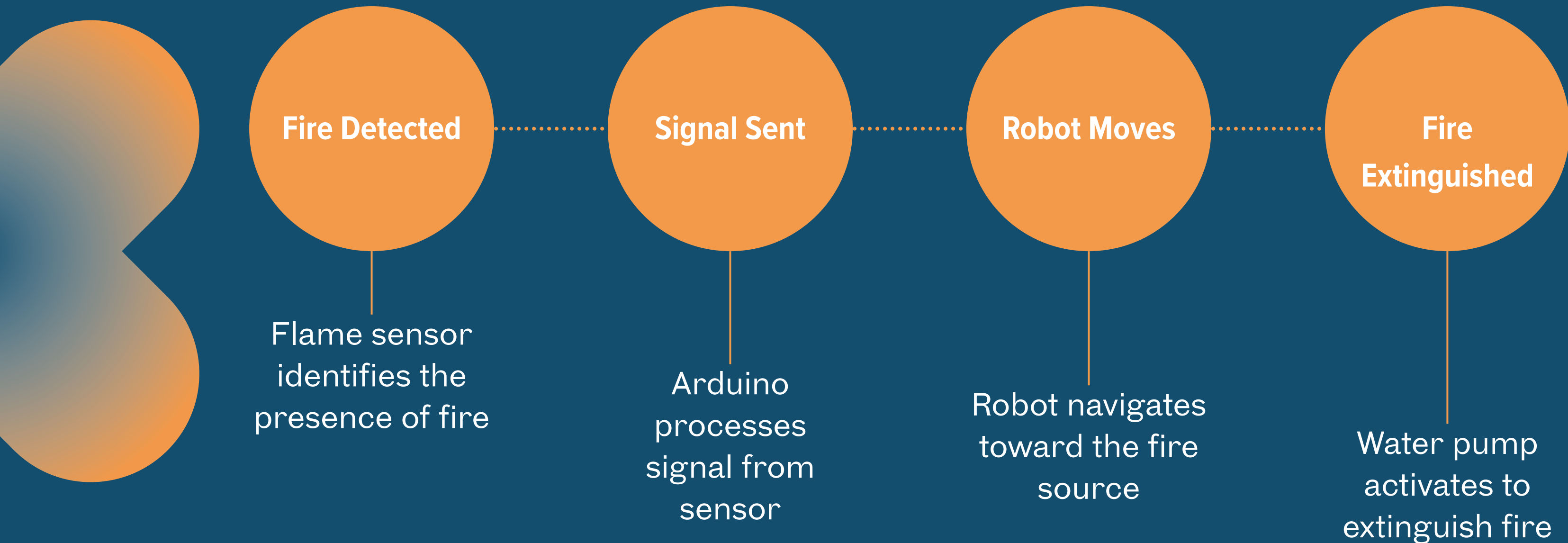
Detects fire presence and signals the Arduino for immediate action.

TEMPERATURE SENSOR

Measures heat levels to assist in fire detection and safety.

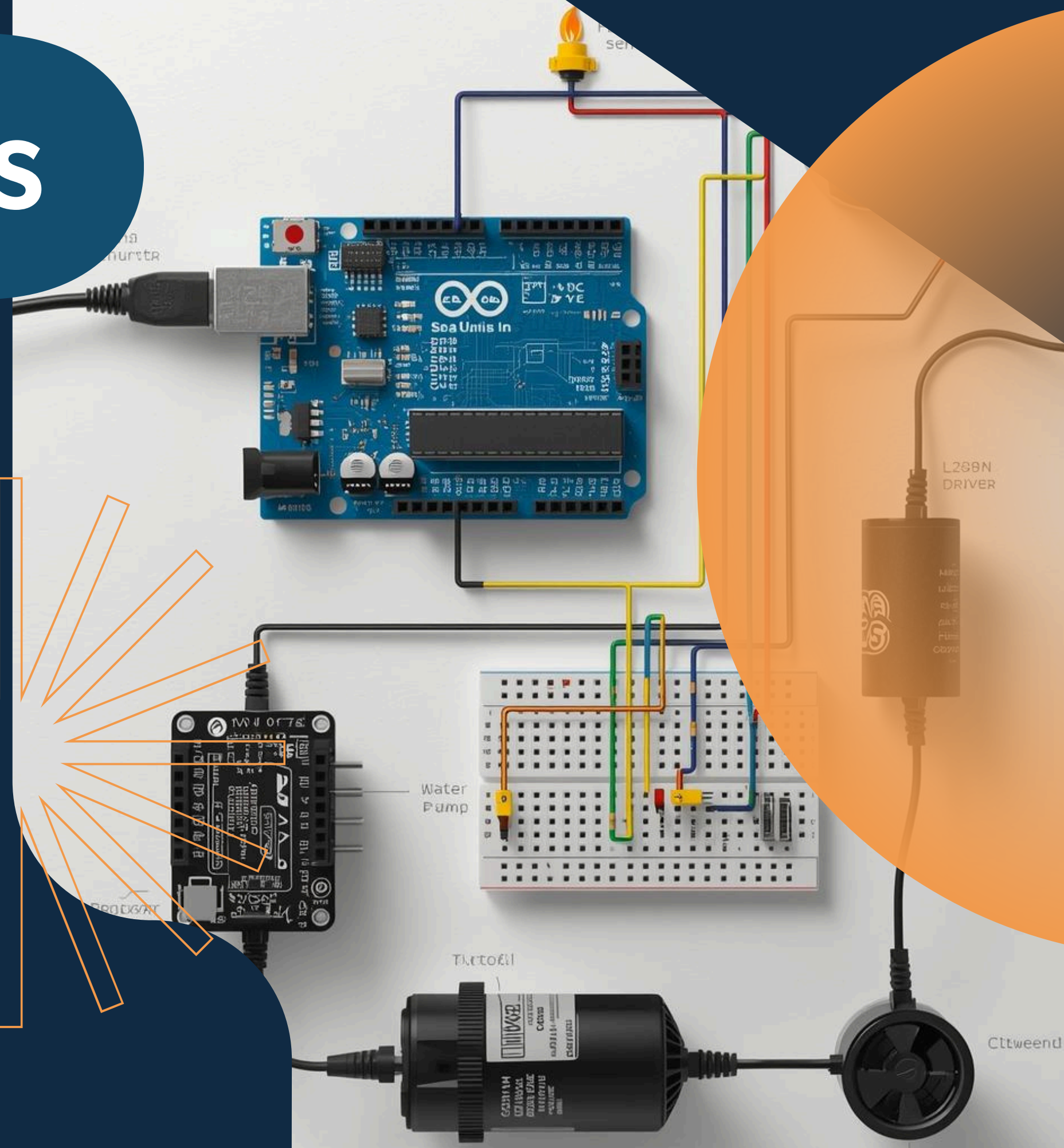
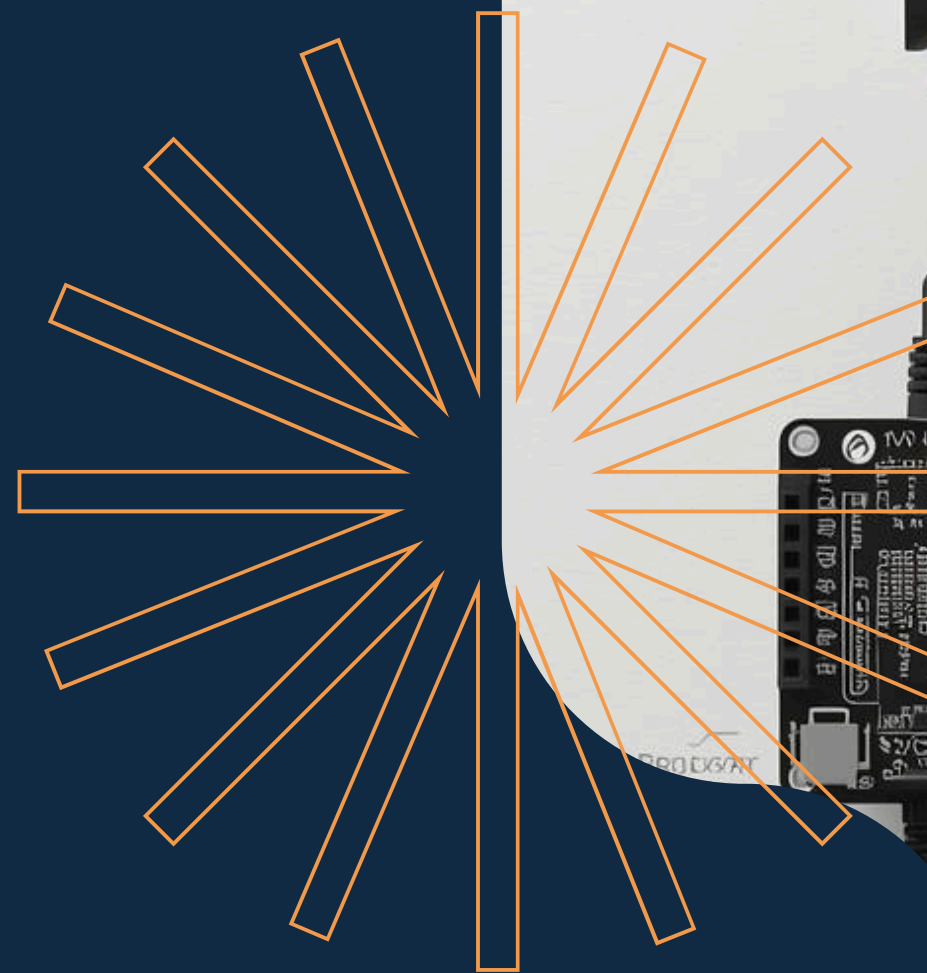
How It Works

Key stages of fire detection process



Circuit Connections

This diagram illustrates the **Arduino's connections** with various components, showcasing input/output paths and ensuring efficient power flow throughout the system.

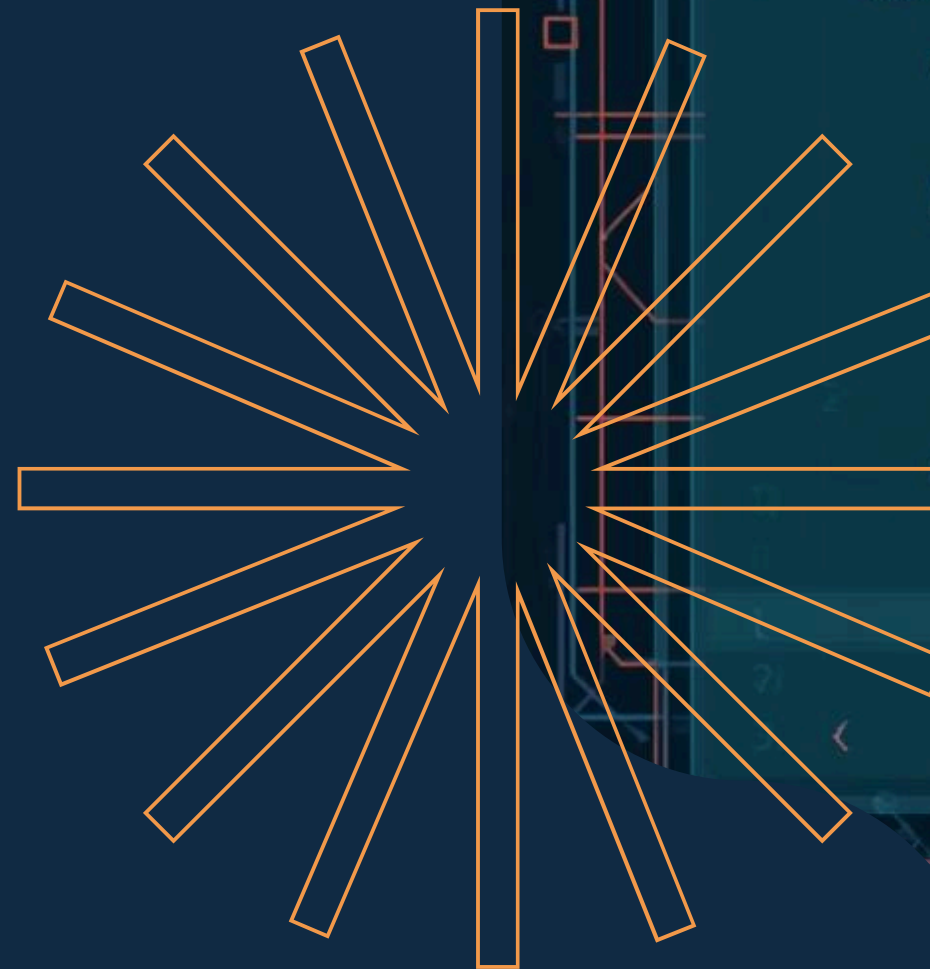


Mechanical structure of the firefighting robot



Code Overview

The programming logic integrates **sensor input** and motor control for optimal pump activation, ensuring efficient real-time response in fire detection and extinguishing tasks.



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Challenges

SENSOR FALSE TRIGGERS

Implemented threshold logic to reduce false alarms from sensors.

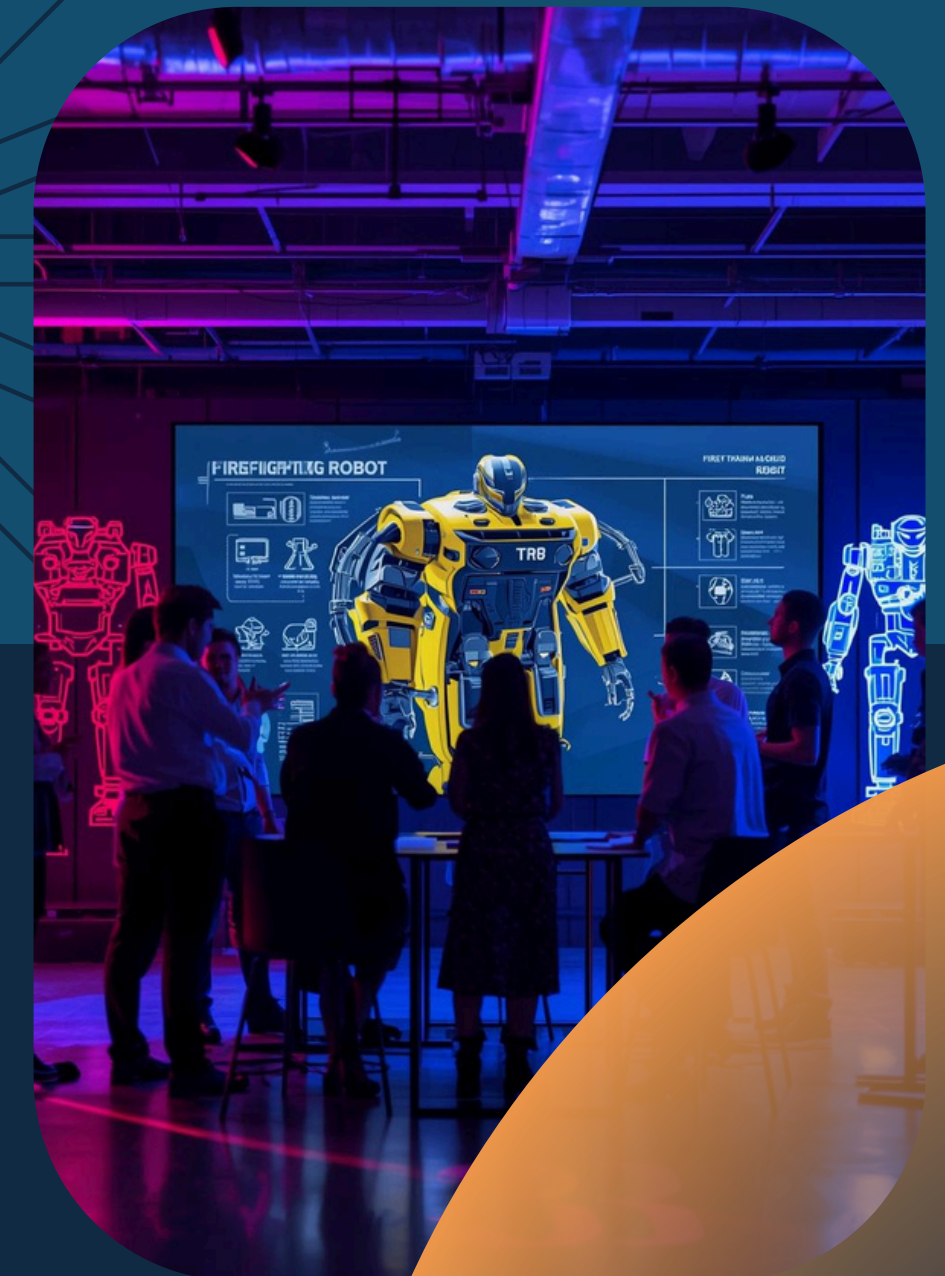
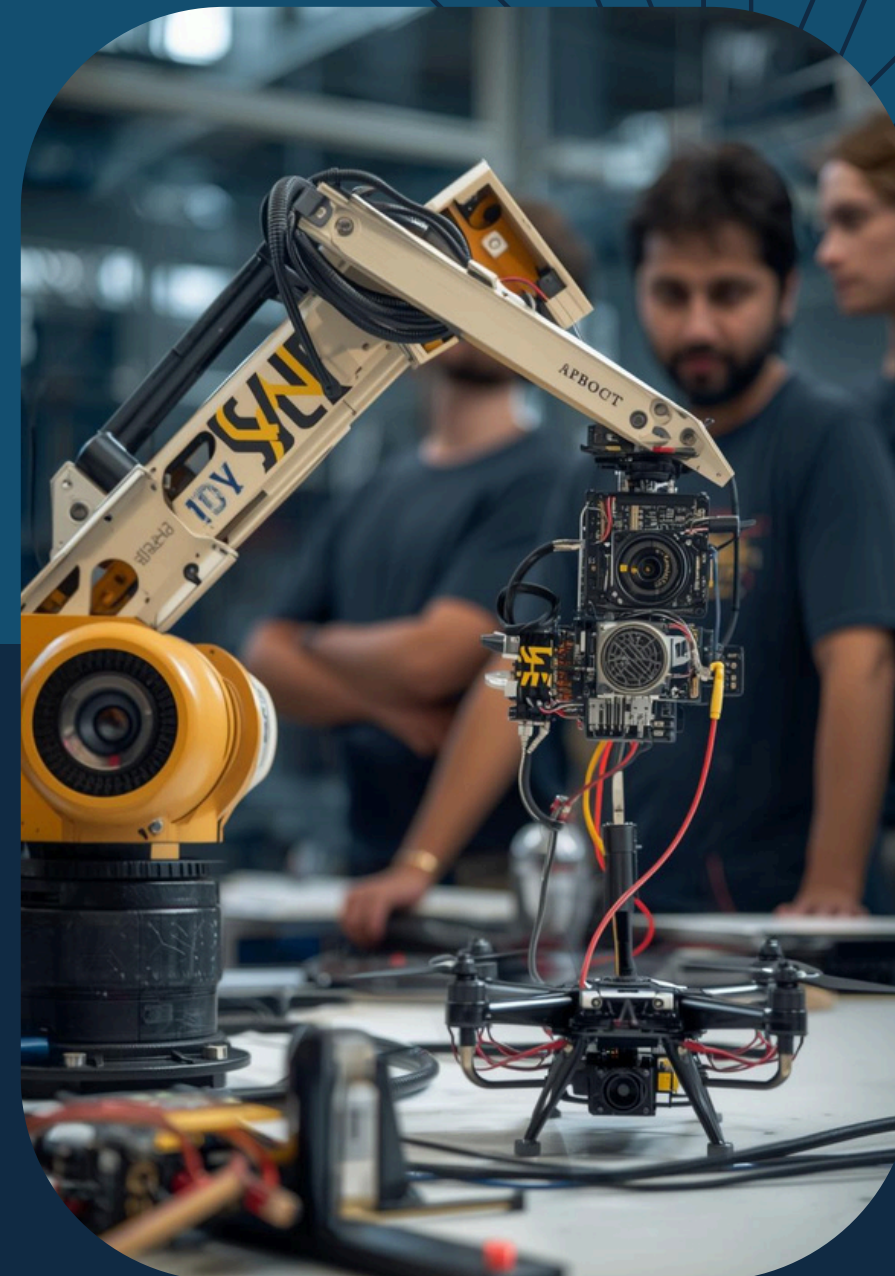
POWER FLUCTUATIONS

Integrated voltage regulators to maintain stable power supply.

LIMITED RANGE

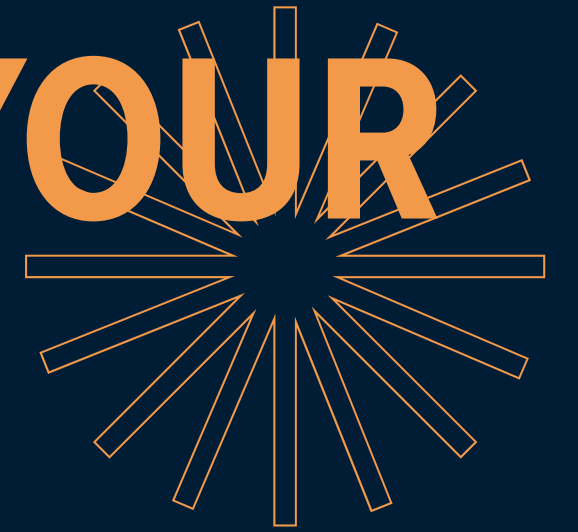
Enhanced motor torque for improved mobility and coverage.

Future advancements in firefighting technology





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