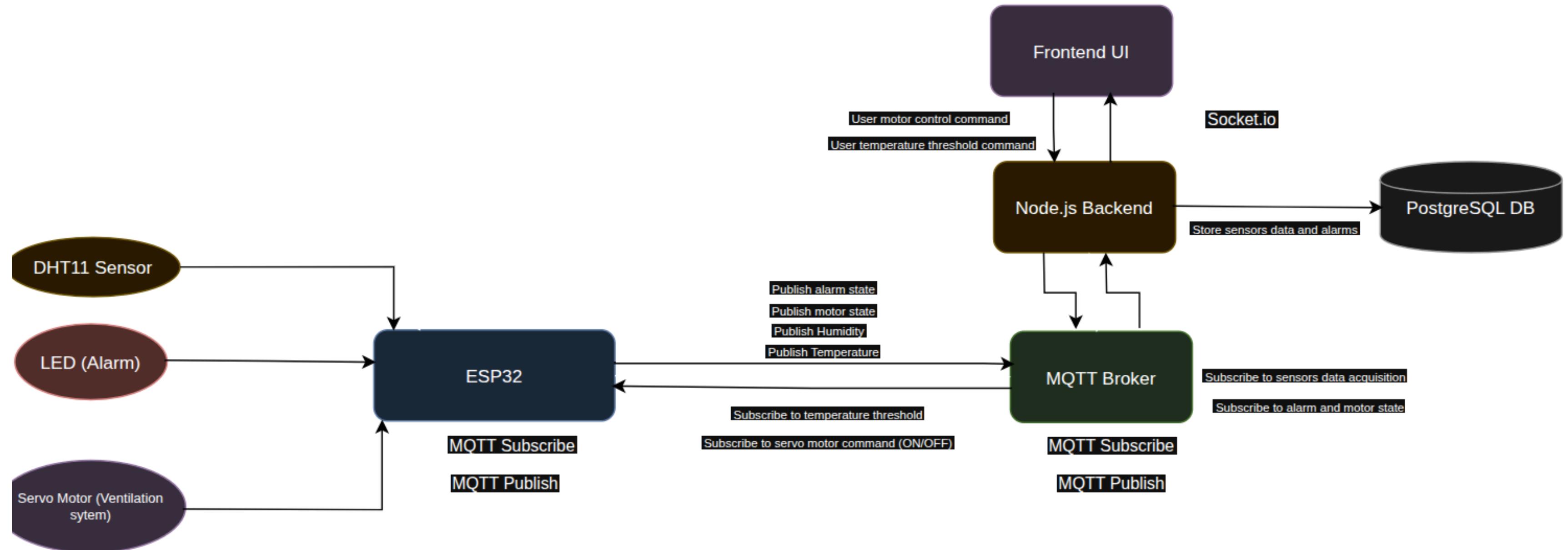


# **Real-time automation - Monitoring and Control System**

Riquelme Batista ,Thalys Barbosa

# Architecture:



## Hardware:

- **ESP32**
- **DHT11-Temperature and humidity**
- **Servo-motor - simulates a ventilation system**
- **LED - simulates an alarm**

## Stack:

- **ESP32 - IDE Arduino to acquire data**
- **MQTT to establish the communication between the data collector and processor**
- **NodeJS + Express to communicate with the front-end and the MQTT processor**
- **ReactJS + Tailwind CSS for the front-end**
- **PostgreSQL to store data**

## Alarm criterion

- When the temperature goes above the threshold temperature set by the user the LED is turned on.
- When the user toggles the ventilation system on the front-end the servo-motor rotates 180°.

## Decisions

- The group found interesting to build up this entire architecture in order to get hands-on experience in how different systems using different protocols communicate, such as MQTT and Socket.io.
- Everything is on the web, so the idea to have an interface available on the web made the group choose this architecture.
- Interest in knowing more NodeJs.

A blurred background image of an office environment. Several people are visible, some sitting at desks working on computers, and others standing or walking through the space. The office has large windows and a modern, open-plan layout.

# Thank you!