A photograph of a large, sunlit greenhouse filled with a variety of lush green plants, including trees and tropical foliage. The structure is made of glass and white frames. In the center, there is a dark grey rectangular box with a white border containing the title and subtitle.

Greenhouse Keeper

- The missings -

A close-up photograph of several green leaves, likely from a plant, covered in numerous small, clear water droplets. The leaves are vibrant green and show detailed vein patterns. The background is dark, making the leaves and droplets stand out.

Overview

In this project we will measure and collect the data of brightness and temperature in the greenhouse. Then, we will use the stored data from our measure and the outsourced API about weather and plants to compute values for using it to balancing the environment of the close area that suit the plants.



Motivation

We want to do this project because we think it interesting to using the sensors with microcontroller board to find and collect the data. After the brainstorm, it should be work with planting in greenhouse when we using light intensity and temperature sensors.

Also after researching, there is no available API providing enough data that might be useful for agriculture. So the data collected from this project can be used for it too.

Overall architecture



Data sources



In the data sources, we have 2 ways to collect.

- 1). collect from microcontroller hardwares which have light intensity and temperature sensors and sent through MQTT broker.
- 2). collect data from plants and weather api, for more information.



Database

In the database, we use the Node.js express to connect to postgres database.

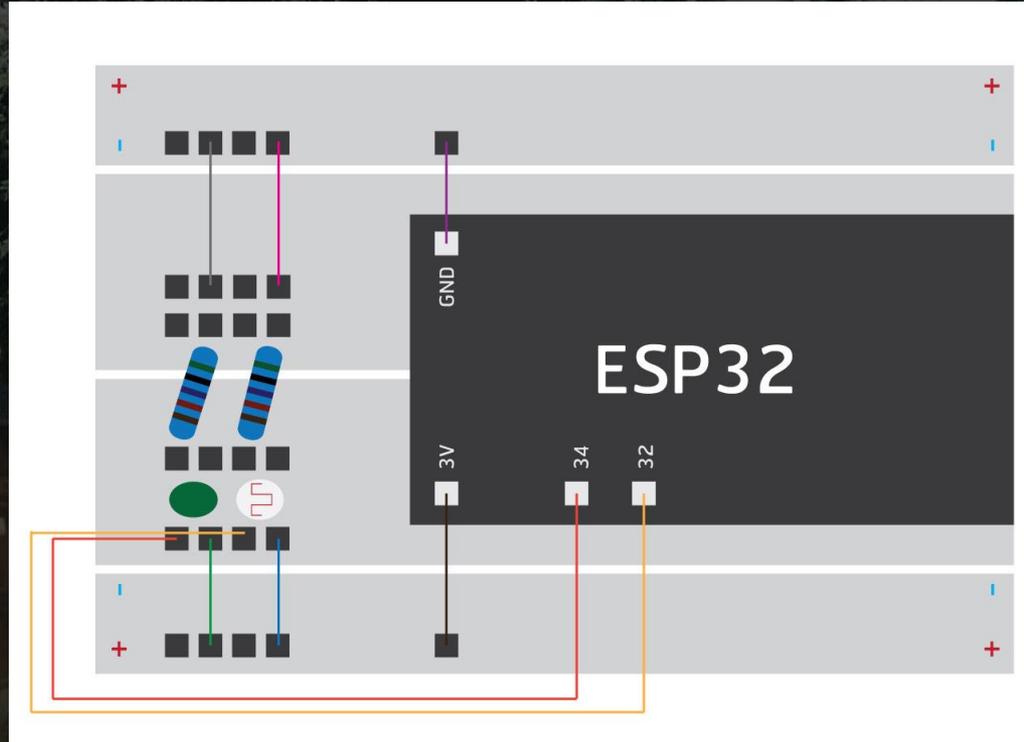
We collecting temperature, brightness and growth in each greenhouse over time, so we can gather and analyze from the data we collected.

Data visualization

A photograph of a green cactus with many yellow spines, set against a light blue sky. The cactus is the central focus, with its spines radiating outwards. The background is a soft, out-of-focus blue sky.

In the data visualization, we use Vue.js framework with css and html for the front-end part and directly pull data from the database.

Microcontroller



Demonstration

