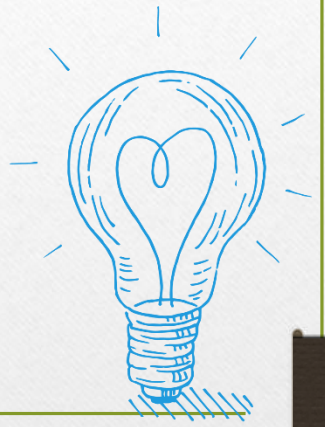
Smart LED



IOT Final Project

Members

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Introduction

- In this project, we will be working on **smart LEDs**, which will be connected to the IoTtalk server.
- By using light sensors and NodeMCU to control the LED through signal, we can make the LED react to certain lighting brightness and several modes that will be determined through user control.
- The basic principle for this project is inspired from smart lightbulbs that could change color, brightness and contrast depending on user input and environmental changes.

Feature

- Ability to control brightness of LED module based on environment brightness
- Each NodeMCU can be seen as a separate LED device that work depending on the mode
- LED patterns displayed in each LED device is controllable from a web page or chat room
- Different mode that can results in unique lighting patterns
- Maintain simple connection through IoTtalk platform for easier LED chaining in the future
- Opening the possibility to control modes and brightness using other device without project restructuring

How to Use

- NodeMCU using LED and brightness sensor
- Website using index.html in team9_web folder
- LED Controller in folder team9_led_controller
- Interpret DAI.py for LED controller using python 3 and above
- Website will provide a simple chat box to input the command
- Supported mode is for the sentence ‘clear’(not case sensitive), ‘0’, ‘1’, ‘2’, ‘3’, ‘4’, and ‘5’

Connection in IOTTalk

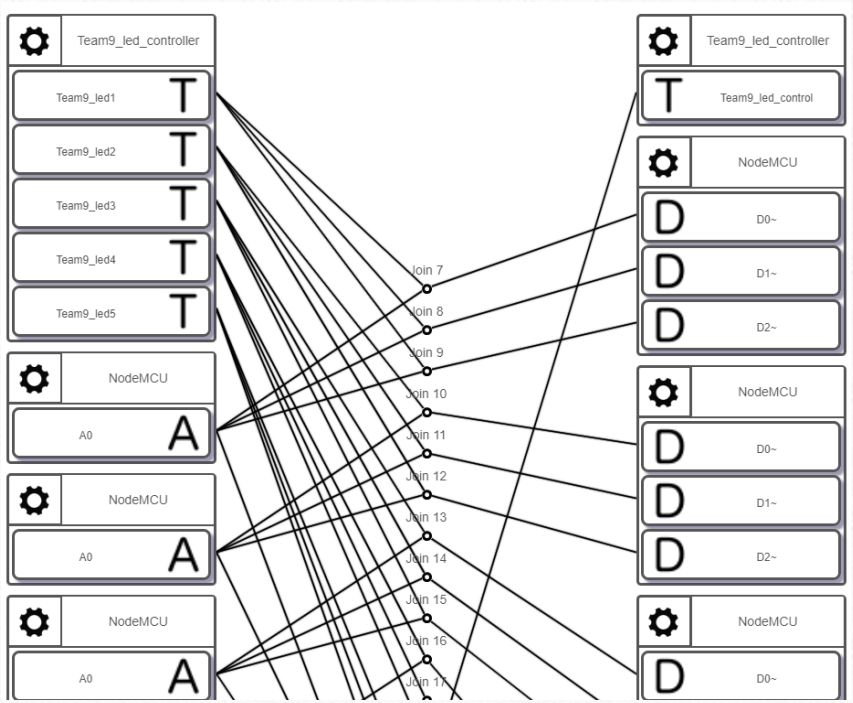

Figure1. Upper Connection

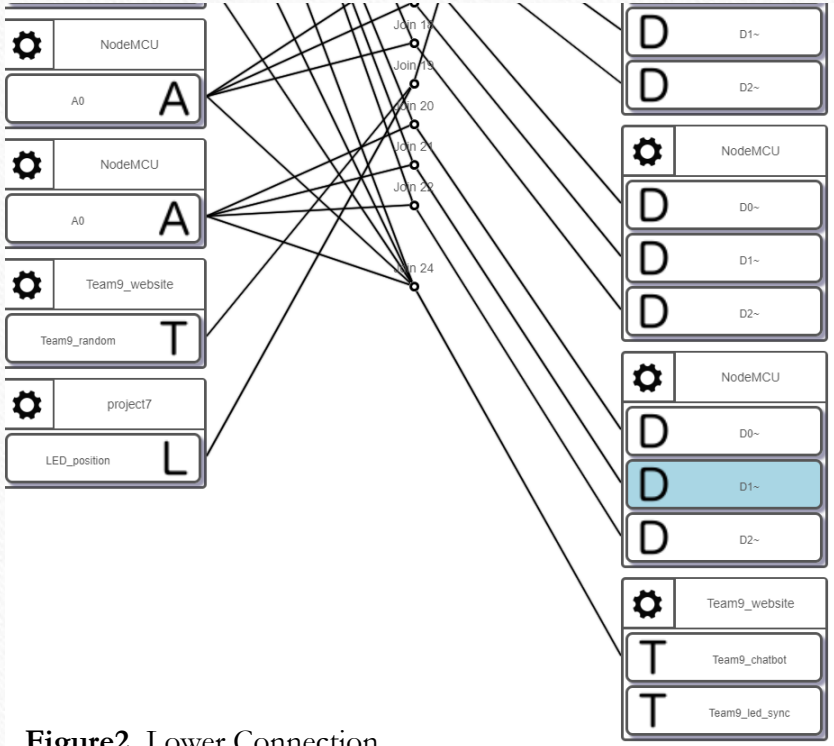

Figure2. Lower Connection

Web Interface

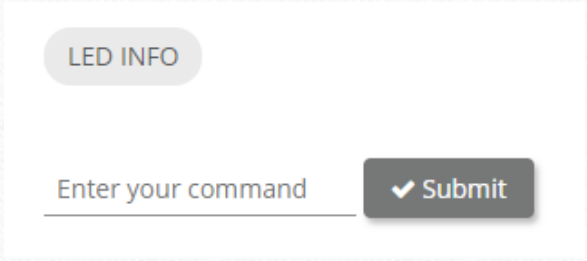

Figure1. Initial Condition

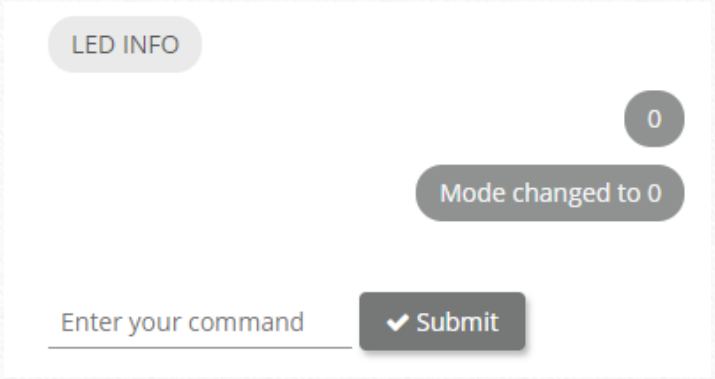

Figure2. Changing mode

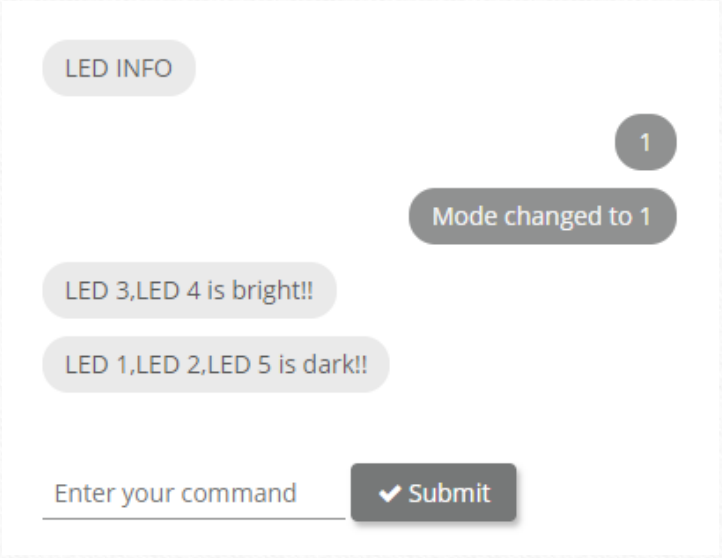

Figure3. Receiving data

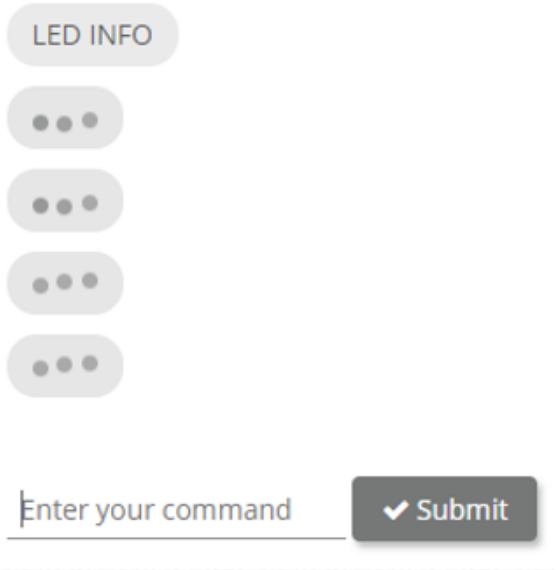

Figure4. Incoming data

Discussion

- Usage in larger scale of LED control using many different data source differentiated by mode state
- Easy for LED daisy chaining
- Easy control and warning report using human friendly report (currently on a web page but not limited to that platform)

Collaboration

- In this Final Project, we collaborate to implement LED controller for Fire detection IOT device
- LED will turn on or off depends on the appropriate condition of the environment in this mode (mode ‘0’)
- Simulated in this project is using 5 LED as representative of 5 different detection location
- Fast redirection to other mode for multi function LED warning usage

Members and Job Separations

- 彭敬樺 (Proposal Making, Software Writer, Report Writer) 20%
- 周才錢 (Proposal Making, Software Writer) 20%
- 徐浚于 (Software Writer) 20%
- 陳煒文 (Software Writer) 20%
- 洪江金 (Software Writer) 20%


Thank
you