Design and Analysis of IoT Project Proposal B
Group 2

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Smart Light System

The project is to develop a smart lighting system where the user will clap to turn lights on or off. In the case where a user claps once the lights will turn on, furthermore, if the user claps twice then the lights will turn off. A clock will also be implemented into the program and record the times where a light was on. This transfer of generated data would be managed by Message Queuing Telemetry Transport protocol. The information will optionally be displayed through a user-friendly interface This information will help the user figure out if they are using their lights during on or off-peak hours. This model will understand user schedules and lead to potential functionality automation in the future.

Functional Requirements:

1. The system will use a sound sensor to understand a user request
2. The interface will display the smart light's current status along with the time it's been on/off for.
3. The application will try to assume user schedule to provide automation
4. The system will manage data transfer through a publisher-subscriber mechanism
5. The system will have appropriate filtering in case multiple sounds are detected at once

Non-functional requirements:

1. The pub-sub mechanism will be handled through MQTT
2. DAOKI High sensitivity Microphone Sensor will be used due to its compatibility with NodeMCU ESP8266 board
3. The system must be able to attach to a battery if connecting to a power source is not possible
4. The system must provide over 90% accuracy in on/off
5. The system must be user friendly and generic for multiple similar applications
6. The clock system will be optional and configurable by the user

The GitHub repository that will be used for this project will be:
https://github.com/TegSingh/IoT-Project-2021.git