

Traffic Light Lamp

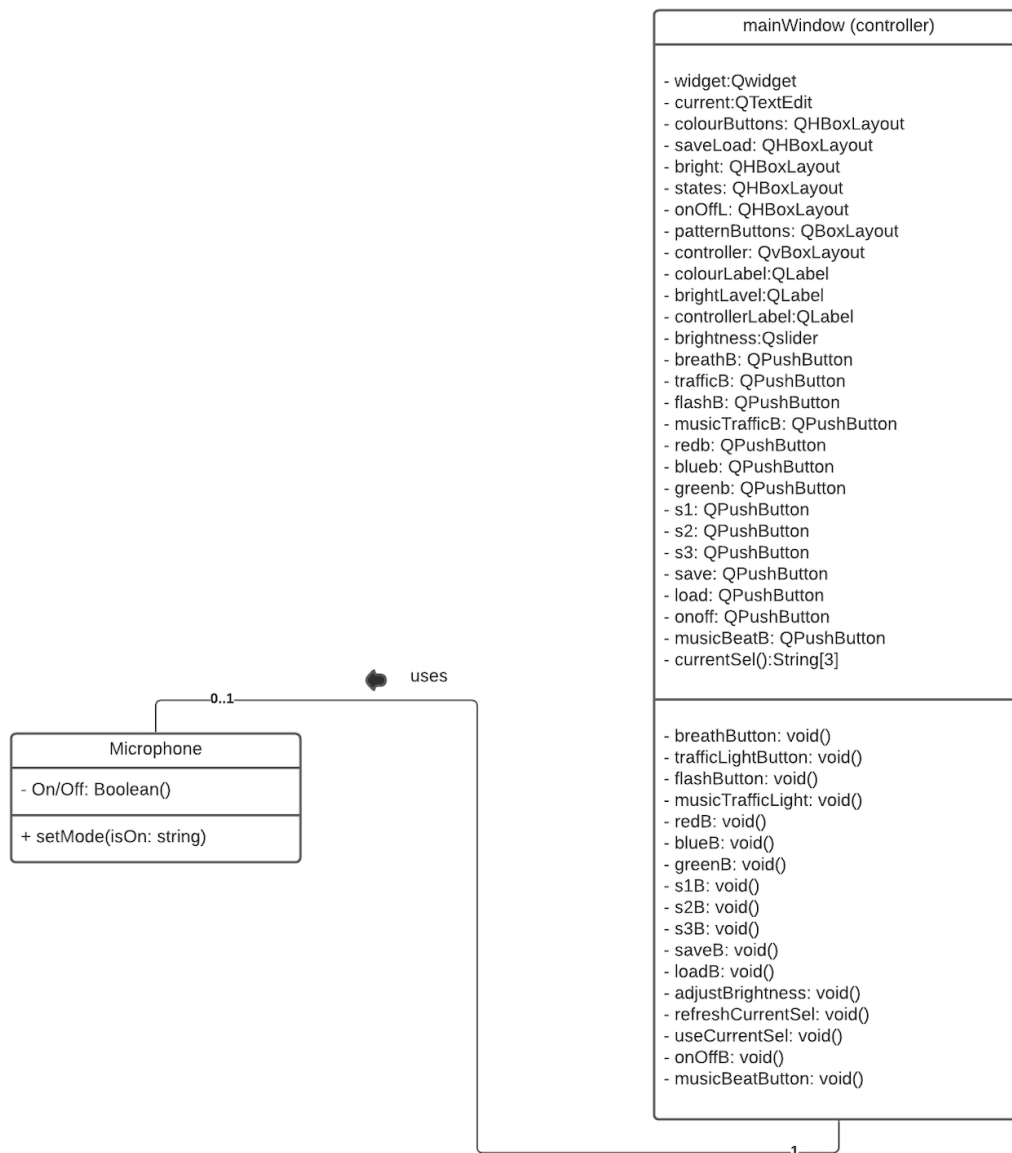
Stage 3

Group 14

Joseph Siy
Brian Cheng
Patrick Mihalcea
Usman Khan
Nada Elkelani

UML Diagram

The UML diagram from the last stage has changed as we realized that most of the work can be done in the mainWindow class. Our program uses other files such as text files and python scripts to work, however the only classes we are currently using is the main window. Later we anticipate using the microphone class for some of our more complicated features.



The following steps have been completed as part of our stage 3 submission:

- Initial set up of hardware components, including getting the lights to interact with the qt controller.

- Controller can connect from qt via Raspberry Pi 3
- Materials used: Raspberry Pi 3 Kit, WS2812B LED light string, 10 MOSFET Transistors, 5V Power Supply, Logical Level Shifter.
- Qt controller creation
 - Properties:
 - on/off button.
 - Colour buttons.
 - Pattern buttons.
 - State buttons used as pre-sets.
 - Current state output box.
 - Save and load buttons.
- State changes, on and off functionality and colour change of the lights via the Controller is fully functional at this stage. The following user stories are completed as such:

Front

* A user can turn the light on and off with the remote control (15 points)

Back

* Try turning on the light with remote control
 * Try turning off the light with remote control

Front

* User is able to save the currently selected states/settings (4 points)
 * User is able to reselect previously saved states/presets (2 point)

Back

* Try saving and loading each of the individual save slots with distinct settings
 * Try saving a state, quitting the program, and loading the state
 * Try saving a state, changing the settings, and loading the same state

The following user point is also fully function as part of a different user story that is still currently in progress:

- * User is able to adjust brightness (2 points)
- * User is able to change colour (3 points)

Please keep in mind since the submission of the second stage, the user stories and story points have changed due to some misinterpretation. We prioritized the functionality of the controller and hardware for this component of the project as there was a learning curve in relation to the set up. The initial hardware and UI set up is essential for us to focus on some of the more difficult story points to be completed in the next submission of our project. Our project has been fully tested and is fully functional for the above story points. In total we have 67 user points, for this submission we have completed a total of 24 points, accounting for $24/67 = 35.8\%$ of our total project. As a team we are happy to book some time with the TA to demo our project. We spoke with the professor about the acceptance tests, he let us know we should submit our code as we normally would and instead come in for a demo as it is difficult to test our project without our hardware. Please contact nelkelan@uwo.ca , pmihalace@uwo.ca, Jsiy@uwo.ca, bcheng49@uwo.ca , ukhan55@uwo.ca and let us know what time works best for you.

Controller functionality

Our controller uses qt to create a user-friendly experience while controlling led lights through the raspberry pi kit. A design layout template called Adapt is used from the following website to create a more user-friendly experience: <https://qss-stock.devsecstudio.com/templates.php>. The layout implemented in our projects comes from a website that reserves the rights for the public to use their code, this code does not have any impact on the functionality of our project, rather just the colour way for a more user-friendly experience. The use of this layout may change as the project progresses. We will discuss what each component does and how to use it for the controller. Buttons are used as expected. When a button is pressed or a slider is moved, it will invoke some code to manipulate the lights of our project. As part of this submission the on/off button, colour buttons, save, load and state buttons are fully functional. As part of our user stories, a user is able pick three settings and save it into one of the state buttons. The three settings are composed of three types: brightness, mode (or light pattern), and colour. As a user picks their settings, the options will appear in the output box at the top of the controller. This way, the user can know exactly what options they have chosen. If a user decides that they like the combination they have chosen, they are able to save these settings in one of the state buttons. This is done by pressing the save button, then pressing the state in which you would like to save it in. If a user decides they would like to go back to one of their saved states, they are able to do so by pressing the load button, then pressing the state in which they would like to see displayed by the lights. A user can save at most three states at a time, and they may modify the states by pressing save and overwriting the old settings of the desired state. More details on the progression of our project can be found in Jira.