**ETZ Send Support Light – Library description**

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# **Abstract**

This is a description of the library that I am going to create to make it easy to control the LED strip for this challenge down below I will give a short overview of the challenge objective.

The challenge about is a challenge for a solution so that the patients of the ETZ hospital in Tilburg can feel the warmth of a person nearby such as family or friends. The possible solution is a kind of night light in the shape of a candle that can be controlled from far away by family and friends who want to show their support.

# **Introduction**

In this document I want to give explanation about the library that I am going to create for controlling the LED strip and turn this LED strip into a flexible LED matrix. The reason that I am going to write a library for it is because it is hard to just plug and play a LED strip and be able to send a patron to it or display scrolling text.

# **Methods**

For giving a good impression about the library I am first going to make a written overview about the library and the way that it is going to work and how it is going to interact with the other classes and the LED strip. Secondly, I am going to make a UML class diagram to show all the fields and methods of this library.

# **Overview**

The main purpose of the library is for turning a LED strip into a flexible LED matrix and being able to program it pretty easy, the serial communication will also be handled by the library so that you can turn almost every digital pin into a RX or TX pin. The control of the on / off switch will also be handled by this library.

For controlling the LED strip, I am going to make use of the FastLED library using this I am going to transfer the LED strip into a LED matrix by calculating the rows and columns.

For the communication, I am going to make use of the softwareSerial library this library enables the user to turn almost every digital pin into a RX and TX pins, the communication class will also handle all the sending and receiving of data. The data will consist of the char datatype.

For the on / off switch there will be a own class that will handle when the button is pressed to turn the strip and communication on or off. The button needs to be connected to one of the hardware interrupts pins so that the button takes effect immediately.

The constructor of this library will take all the pin information and how many rows and columns the user wants. Almost all methods of this library will return void because of the fact that all the communication and most controlling will be handled by this library. The library just needs to have two standard function one in the setup() that one is ledMatrix.begin() for starting up the communication and in the loop() there will be the ledMatrix.update() this one checks if there are new messages in the librarty for the main code.

# **UML class diagram**

