LED String Animation

PO5\_LSAN

Youssef Muhammed Ahmed Kamal

Mennatullah Mostafa Abd El-Nabi

Walid Adel Hassan Saeed

Mohanad Fawzy Mohamed Ashour

Sarah Abdelrahman Ibrahim

**Software Requirements Specification Document**

Document status

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Author | Date | Status |
| v.04 | Mohanad Sallam | 04/02/2020 | Draft |

Document history

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Author | Date | Change description |
| v.01 | Mohanad Sallam | 23/1/2020 | Create initial draft |
| v.02 | Mohanad Sallam  Sarah AbdelRahman | 29/01/2020 | Adding requirements |
| v.03 | SarahAbdelrahman | 29/01/2020 | Adding requirements, System features and system interfaces |
| v.04 | Mohanad Sallam | 04/02/2020 | Removing Unused tittles,  Changing ID colors and Removing curly brackets |

Contents

[1.0 Introduction 3](#_Toc31696679)

[1.1 Purpose 3](#_Toc31696680)

[1.2 Scope 3](#_Toc31696681)

[1.3 References 3](#_Toc31696682)

[2.0 The Overall Description 4](#_Toc31696683)

[2.1 User Needs 4](#_Toc31696684)

[2.2 Product perspective 4](#_Toc31696685)

[2.2.1 System interfaces 4](#_Toc31696686)

[2.2.2 Interfaces 4](#_Toc31696687)

[3.0 Specific Requirements 4](#_Toc31696688)

[3.2 Functions 4](#_Toc31696689)

[3.3 System features 5](#_Toc31696690)

# Introduction

## Purpose

This is a v.02 of the requirements specifications for a LED String Animation.

## Scope

-Strings of LEDs as the following structure are used to provide Tail and TI functions based on some input signals.

- At startup, WELCOME mode shall be one of the following modes:

● **First mode:** LEDs shall be ON from L6 to L1, then from R1 to R6 and vice versa, and then all LEDs are ON and OFF.

● **Second mode:** LEDS from R1 to R6 are ON LED by LED and also the left branch at the same time, and then repeat the scenario again.

- Tail function shall be activated according to Tail switch.

- TI function shall be activated be activated according to TI switch, LEDs shall be activated LED by LED from R1 to R6 or from L1 to L6.

## References



# 2.0 The Overall Description

## 2.1 User Needs

- Control the system through buttons

- Change the startup mode when needed

## 2.2 Product perspective

### 2.2.1 System interfaces

The system consists of 3 subsystems each has its own functionality:

1. Controls TI LEDs
2. Controls Tail LEDs
3. Sets the Startup mode

### 2.2.2 Interfaces

A unique signal is sent to the controller each controls one of the functionality.

# 3.0 Specific Requirements

**[Req \_ LED STRING ANIMATION\_PO5\_SRS \_ 001 \_ v01]**

A signal is sent to the controller to determine the status of the Tail LEDs**.**

(Req \_ LED STRING ANIMATION\_PO5\_CYRS \_ 002 \_ v01)

**[Req \_ LED STRING ANIMATION\_PO5\_SRS \_ 002\_ v01]**

A signal is sent from the controller to the Tails LEDs to indicate the activation or deactivation of them.

(Req \_ LED STRING ANIMATION\_PO5\_CYRS \_ 002 \_ v01)

**[Req \_ LED STRING ANIMATION\_PO5\_SRS \_ 003\_ v01]**

A signal is sent to the controller to determine the status of the TI LEDs.

(Req \_ LED STRING ANIMATION\_PO5\_CYRS \_ 003 \_ v01 \_ Imp)

**[Req \_ LED STRING ANIMATION\_PO5\_SRS \_ 004\_ v01]**

A signal is sent to the controller to activate the TI left LEDs function.

(Req \_ LED STRING ANIMATION\_PO5\_CYRS \_ 003 \_ v01 \_ Imp)

**[Req \_ LED STRING ANIMATION\_PO5\_SRS \_ 005\_ v01]**

A signal is sent to the controller to activate the TI right LEDs function.

(Req \_ LED STRING ANIMATION\_PO5\_CYRS \_ 003 \_ v01 \_ Imp)

## 3.2 Functions

**[Req \_ LED STRING ANIMATION\_PO5\_SRS \_ 006\_ v01]**

TI right LEDs function send HIGH signal on port-B pins in the controller in sequence from P7 to P0 with delay of 500ms then send LOW signal to all port-B pins at the same time.

(Req \_ LED STRING ANIMATION\_PO5\_CYRS \_ 003 \_ v01 \_ Imp)

**[Req \_ LED STRING ANIMATION\_PO5\_SRS \_ 007\_ v01]**

TI left LEDs function send HIGH signal on port-A pins in the controller in sequence from P0 to P7 with delay of 500ms and send LOW signal to all port-A pins at the same time.

(Req \_ LED STRING ANIMATION\_PO5\_CYRS \_ 003 \_ v01 \_ Imp)

## 3.3 System features

* Control 18 pins as outputs.
* Receive 4 different signal from input pins.