LED String Animation

PO5\_LSAN

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**Software Requirements Specification Document**

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# Introduction

## Purpose

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

## Project Description

This project consists of strings of LEDs in a certain pattern. The LEDs turn on/off based on input signals. The LEDs structure consists of two parts Tail and TI. Each Part will be activated according to the corresponding switches.

At Startup Mode there are two options (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.

## 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.