SRS

Are We There Yet?

Names

Version 1 – Date

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# Revision History

|  |  |  |
| --- | --- | --- |
| Date | Reason for Change | Version |
| 7 Sep. 2014 | Initial Draft | 0.1.0 |
| 9 Sep 2014 | In-class revision | 0.2.0 |
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# Introduction

## Purpose

The purpose of this document is to define the system requirements of the robot put forth by Are We There Yet (AWTY) to compete in the IEEE SouthEastCon 2015 student competition. These requirements include the functional and performance requirements, system constraints, system interface constraints and standards compliance of the system. This document is intended for the customer of AWTY, the requirements engineering team for AWTY, the design, testing, maintenance and quality assurance teams, as well as all other teams involved in the development and construction.

## Problem Statement

To create an autonomous robot to compete in the IEEE SouthEastCon 2015 student hardware competition.

## Scope

## Team Information

|  |
| --- |
| Name |
| Michael Philotoff |
| Brian Powell |
| Alex S |
| Brian Sterling |

## Overview

This document is fully compliant with the standards enumerated in IEE Std. 830-1998[REFFFF], and has been divided into sections in accordance with the best practices prescribed within this standard. Section 1 of this document serves as introduction to the **IEEE COMPETITION?**

# Functional Requirements

## General

* + - 1. The system shall identify red [RGB value TBD] LED in starting area.
      2. The system shall wait for red [RGB value TBD] LED to **GO OUT** (bad) before exiting starting area.

## Movement

* + 1. The system shall move in four directions.
       1. The system shall have the ability to move forward.
       2. The system shall have the ability to move backwards.
       3. The system shall have the ability to turn right.
       4. The system shall have the ability to turn left

## Navigation

## Challenge Completion

* + 1. System shall play Simon for 15 seconds.
       1. System shall initiate Simon game by depressing start button.
       2. System shall correctly sense color blue [exact RGB values TBD] when illuminated on Simon board.
       3. System shall correctly sense color red [exact RGB values TBD] when illuminated Simon board.
       4. System shall correctly sense color yellow [exact RGB values TBD] when illuminated Simon board.
       5. System shall correctly sense color green [exact RGB values TBD] when illuminated Simon board.
       6. System shall not obstruct Simon carabineer during play.
    2. System shall twist one row of a Rubik’s cube 180 degrees.
       1. System shall not obstruct Rubik’s cube during play.
    3. System shall draw “IEEE” on an Etch-A-Sketch.
       1. Font and size shall [TBD].
       2. System shall not obstruct Etch-A-Sketch during play.
    4. System shall collect a single playing card.
       1. System shall carry playing card across finish line.
       2. System shall keep card in a usable condition.

# Non-Functional Requirements

## System Size

* + 1. The system size shall be no greater than 1’ x 1’ x 1’ within the starting area and the finishing area.

## Power Management

* + 1. The system shall operate for a minimum of three consecutive course rounds each having a duration of five (5) minutes, on one battery life.

## Start Method/Operation

* + 1. The system shall have a clearly indicated power switch
    2. The system shall be completely autonomous after being powered on
    3. The system shall maintain contact with course floor at all times