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 2015 Institute of Electrical and Electronics Engineers (IEEE) SoutheastCon student hardware 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 2015 IEEE SoutheastCon student hardware competition.

## Scope

The system built by AWTY is intended to compete in the 2015 IEEE Southeast Con student hardware competition. The system is envisioned to complete four unique challenges:

* Correctly play Simon for 15 seconds
* Draw “IEEE” on an Etch-a-Sketch
* Twist one row of a Rubik’s cube 180 degrees
* Pick up and carry one playing card across the finish line

The autonomous system is intended to successfully complete the challenges outline above within a time limit of five minutes. **NEED MORE**

The system built by AWTY is not intended to serve any other functions or fulfill any other purposes other than competing in the 2015 IEEE SoutheastCon competition.

## 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 system designed by AWTY, which contains the scope of the project as well as the team involved in its engineering. Section 2 provides an overall description of the system, including stakeholders involved in the project, the functions of the system, the division of the system for requirements engineering purposes and proposed use cases for the system. Section 3 describes the functional and non-functional requirements of the system, as well as all supporting system requirements.

The Glossary contains definitions of all industry and standard terms as well as ambiguous terms, used throughout this document. A table of acronyms and abbreviations is included in order to dispel ambiguity with any acronym or abbreviation used within this document.

# Overall Description

# 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

# Glossary

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| --- | --- | --- |
| Entry | Definition | Aliases |
| SoutheastCon | SoutheastCon is the annual IEEE Region 3 Technical, Professional, and Student Conference. It brings together Computer Scientists, Electrical, and Computer Engineering professionals, faculty and students to share the latest information through technical sessions, tutorials, and exhibits. It is the most influential conference in Region 3 for promoting awareness of the technical contributions made by our profession to the advancement of engineering science and to the community. As usual, attendance and technical program participation from areas outside IEEE Region 3 are encouraged and welcomed. IEEE Region 3 encompasses the southeastern United States and includes the states of Alabama, Florida, Georgia, areas of Indiana, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and the country of Jamaica |  |