Project Goals

Group 4: Autonomous Foosball Table

Revision 0

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# 1 Revisions

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# 3 Introduction

## 3.1 Purpose

The purpose of this Project Goals document is to define the target of our end product base on the research of currently existing products. This document acts as a guide for later stages in the development process, including validation and verification.

## 3.2 Scope

The focus of this document is on high-level description of project goals and means to determine if final product meets the goals.

## 3.3 Reference

[1] “Foosball Rules” Internet: <http://www.foosball.com/learn/rules/>, Apr. 02, 2009 [Otc. 19, 2015]

[2] Michael Aeberhard, Shane Connelly, Evan Tarr, and Nardis Walker. fall 2007. Single Player Foosball Table with an Autonomous Opponent. Available: <http://www.eskibars.com/projects/foosball_robot/final_rpt.pdf>

[3] “NetFoos Box Statics” Internet: <http://www.netfoos.com/box_stats/match_summary/6/7/13.html>, Sep. 26, 2006 [Otc. 19, 2015]

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# 4 Goals

## 4.1 Feature

1. The system shall follow the basic foosball rules[1]**.**

In order to have an entertaining and fair gameplay, the system should follow the basic foosball rules and behave like a human foosball player.

1. The system shall consist of three difficulty levels for different player skills.

Autonomous foosball table is meant to be fun to play against and able to provide enough competition to entertain the end user. By having multiple difficulty levels the overall gameplay experience will be improved.

## 4.2 Performance

1. The system shall score at least 50% of the shots taken when unopposed.

In order to have a competitive gameplay the system should at least score half of its shots when the goal is unattended. The existing solutions with similar cost can only score 10% of its shots unopposed in practice[2].

1. The system shall block at least 70% of human shots in highest difficulty level.

In a professional foosball game is block rate is only about 50%[3], our fast-reacting system could make the gameplay even more competitive and intense.

## 4.3 Cost

1. The cost of autonomous foosball table shall be less than 400 dollars.

We are aiming to build an affordable autonomous foosball table while keeping the performance at a competitive level.

## 4.4 Safety

1. The system shall halt within 400ms after unknown objects present in the foosball playfield.

This goal is to provide a safe environment to players during gameplay and minimize the potential risks