**PROJECT PROPOSAL**

Snake & Ladder

1. Introduction

This project is snake and ladder game represented in a mix of hardware and software. It includes a software program for the game and a real board working as a simulator.

1. How the game goes:

When the program starts, the players gets many choices in the start page, whether choosing a game mode (single or two players), editing some settings, or exiting the game.

In case of choosing to play as a single player, the player login to his/her account and then the game starts. If the mode to play as two is chosen, the two players will enter their names and choose a color to play with.

When the game starts, the board appears on screen, the player rolls the dice in a specific place on the real board, then, the player uses laptop camera to scan the dice. After that, each step the player will move on screen will be represented by lamps on the board.

In the options, the player can increase or decrease the game’s music volume, make the game full screen or smaller.

1. How it works:

The program is basically a desktop application written in Java, connected to the board with an Arduino chip programmed to control the lamps.

The board is divided in squares, each square divided in two halves and each half has a lamp (each half with a different lamp color) to represent the players. It also includes marks on where the snakes and the ladders are.

In the board, there’s a specific square where the players will roll the dice. The game will use image processing to read the value of the number appeared after each roll.

After the value is read, the game is programmed to follow the rules of the original game on screen and on the real board.

1. Probable improvements:

• Converting the game into a mobile application.

• Adding an option that allows the player to play a song instead of the game’s music.

1. Key personnel:

Team members: