

# CS 101 PROJECT : AIR HOCKEY

LAB BATCH 61

SRS(Software Requirement Specifications)

Weekly Submission 1

## Introduction

This project is a game application made using EzWindows. It is based on the game/sport known as “**Air Hockey**”.

Air hockey is a game for two competing players trying to score points in the opposing player’s goal. Air hockey requires an air-hockey table, two player-held mallets, and a puck. A typical air hockey table consists of a large smooth playing surface, a surrounding rail to prevent the puck and mallets from leaving the table, and slots in the rail at either end of the table that serve as goals. Additionally, tables will typically have some sort of machinery that produces a cushion of air on the play surface through tiny holes, with the purpose of reducing friction and increasing play speed. On the ends of the table behind and below the goals, there is usually a puck return. Air Hockey pucks are slim discs made of Lexan polycarbonate resin. Standard USAA-approved pucks are the yellow lexan, red lexan and the Dynamo green. In competitive play, a layer of thin white tape is placed on the face-up side.

The project is designed to be on the same lines.

## Game design

The main window in which the game runs will be the “Gameplay” window. This window will have a background image of the field/table. There will be three other images moving around - The Puck and the two Paddles(instead of the Mallets).

The Puck is circular while the Paddles are elongated and rectangular.

The paddles can move both vertically and horizontally, The paddle on

the left is restricted to move only in the left 20% width of the field. Similarly, the right paddle is restricted to move only in the right 20% width of the field. The goal-areas are located centrally along the left and right boundary of the table/field. The height of the goal-areas is equal to 50% of the height of the field/table. A goal is scored by a player when he hits the puck in the goal area on the opposite side.

The collisions of the puck with the boundaries and the paddle are assumed to be elastic. The movement of the paddles are controlled by inputs from the keyboard. Each paddle will be controlled by four buttons(To move it Right, Left, Up and Down). The movement of the puck will have infinite acceleration, meaning that as soon as a specific key( Right, Left, Up or Down) is pressed, the paddle will move and, as soon as it is released, it will become stationary.

The paddles will be assumed to be smooth so that there is no frictional impulse(parallel to the surface of the paddle) during the collisions with the Puck.

A match will have a specified maximum number of goals(which will be taken as input from the players), which when scored, will end the match.

We have designed the game to be made in five windows :-

- 1.Main Menu
- 2.Enter the details
- 3.Gameplay
- 4.Match result
- 5.Instructions

The details of each of these windows are as follows : -

(1).Main Menu -

This window contains 3 options namely - “NEW GAME”, “INSTRUCTIONS” and “QUIT”.

Clicking on “NEW GAME” will open window (2).

Clicking on “INSTRUCTIONS” will open window (5).

Clicking on “QUIT” will close the program.

### (2).Enter Details –

This window asks “Player 1 Name – \_\_\_\_\_” , “Player 2 Name – \_\_\_\_\_” and “Maximum number of goals : \_\_\_\_”.

It has a button in the bottom named as “CONTINUE”, which opens the window (3), i.e., the “Gameplay” window.

### (3).Gameplay –

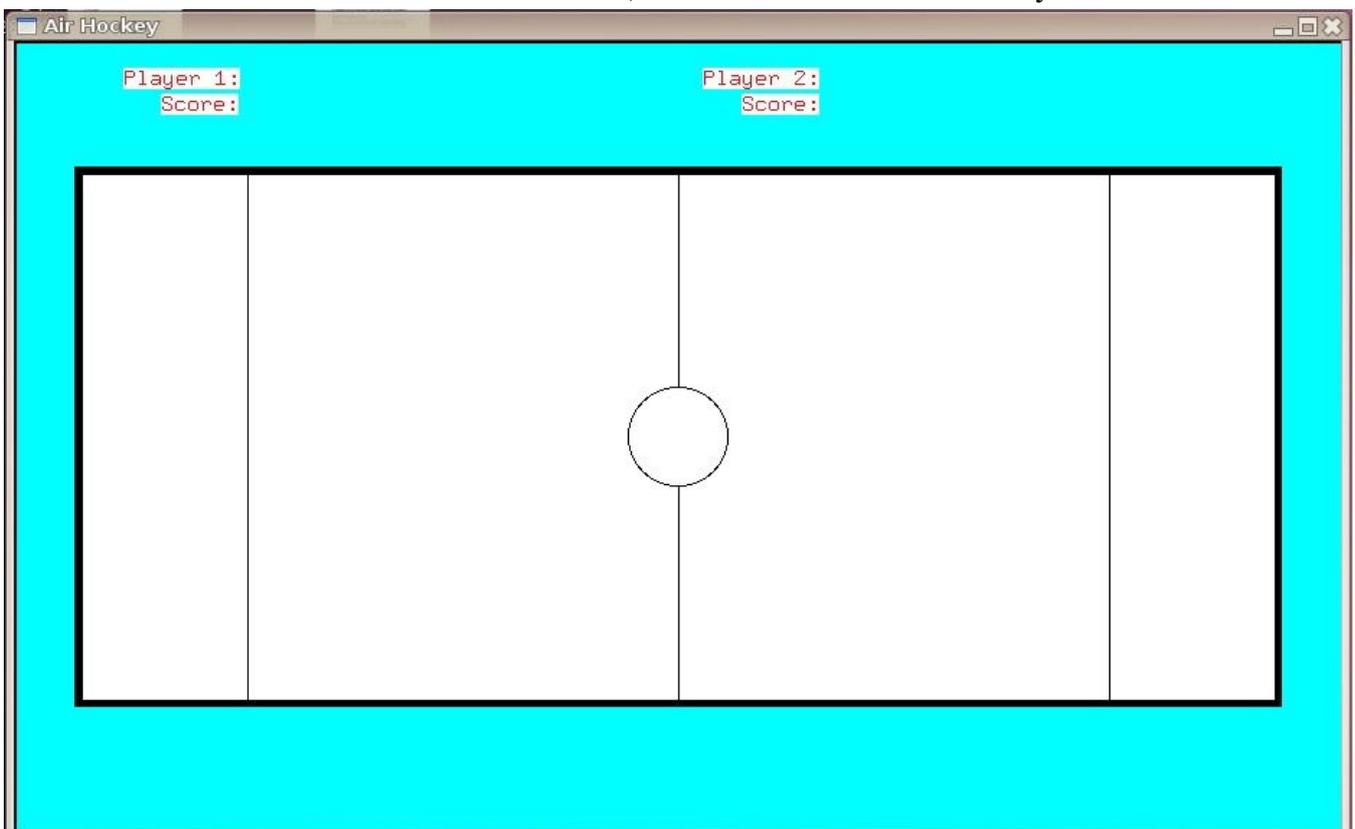
This window is where all the game is played.

It has the names of the players, the score, the maximum number of goals, all at the top.

Then the field/table is centrally displayed.

In the bottom has three buttons – “PAUSE”(Pauses the game), “BACK TO MAIN MENU”(Opens window (1)) and “RESTART GAME”(Opens window (2)).

As soon as this window is opened, the game starts and the Puck is released from the centre of the field in a random direction(which is neither horizontal nor vertical) with a random velocity.



#### (4).Match result

This window displays “Congratulations! <Winning player’s name> won the match!”.

In the bottom there are two buttons – “PLAY AGAIN”(Opens window (2)) and “MAIN MENU”(Opens window(1)).

#### (5).Instructions

This window contains the instructions about the rules of the game and controller information.

### **Work distribution**

We have distributed the work among 2 teams in our lab batch 61.

TA:- Gururaj Saileshwar

Team A - Sarode Akshay Sanjay (110260010) (Team leader & coordinator)

Saurabh bhatt (115280021)

Shaikh nida fazlur rehman (115280001)

Team B – Shah alok minesha (110010001) (Team leader)

Shah vraj pranav (11D170001)

Satyabrata das (115060010)

Work handled by Team A :-

Team A will be handling the window in which the game will be played, i.e, the “Gameplay” window. This includes the background( field), displaying of the players’ names and the score, maximum number of goals scored after which the match gets over, movement of the puck, collisions of the puck with the walls and the paddles, buttons namely “PAUSE”, “BACK TO MAIN MENU” and “RESTART GAME”.

Work handled by Team B :-

Team B will be handling the 4 windows other than the “Gameplay” window. The work of making the buttons, the links with the buttons, the background graphics, and other graphic elements such as effects when a button is pressed, etc.