Team "ACES"

Deliverable B

GNG 1103

Group GO1-1

Team members

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INTRODUCTION

In modern society, technology has become a crucial tool in all aspects of creating, designing, and all other aspects within engineering. Now that technology has become part of everyday life, we can use it to gather information from the real world and integrate it into the virtual world. As a solution to the client's problem, the task at hand is to integrate the use of 3D space to create a virtual record of a match for the game known as "Padel ball." This includes showing records of where the ball has travelled throughout the match. The purpose of the project is to create software that offers information about a Padel ball match and allows the user to observe the position of the ball at any moment throughout the match.

ABSTRACT

The goal of the project is to produce a product that can take input from a camera recording a live game of the new and upcoming game Padel ball and store the position of the ball; then allow the user to view the ball's position in a 3D virtual space. After meeting with the client their needs have been rated in terms of importance and a problem statement has been created.

CLIENT NEEDS IDENTIFIED IN ORDER OF PRIORITY

1. **The product we create must have potential for further development**

   – Ease of adding more cameras and sensors for a more accurate position of the ball.
   – Easy to add more features to view game data in different ways.
   – Further developing the 3D space to provide an improved visual experience.

2. **Marketing for high performance athletes and trainers**

- Technology that can determine the velocity, force of the hit and angles the ball reaches as well as being able to track it at every moment of time.
- Mechanism to replay the footage of the game so coaches can improve their teaching.
- Software that can also be used for smaller clubs and tournaments.
- Can detect whether the ball is in bounds or not.
- Can be installed on a court without interfering with the game.

3. Quality of the product

- Must have accurate 3D positioning and good documentation.
- Must incorporate use of SI units.
- Must use software such as openCB or unity for data collection.
- Must store information in an app.
- Must stick to $50 budget.
- Use good headers, footers and comments in final documents.
- Capable of streaming the collected data to graphics card.

PROBLEM STATEMENT

Design a product that will capture the motion, position, velocity, and force of a ball during a Padel Ball game and accurately display the output on a user-friendly platform (such as an app).

CONCLUSION

We concluded that the client would like us to come up with a software program that can capture the motion of a paddle ball in 3D and use the software to analyze multiple aspects of the game.