PaddlePals

Team G01-2

Deliverable B: Needs Identification

Engineering Design GNG1101

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ABSTRACT

The purpose of the project is to develop a digital replica of a paddle-ball game which is accessible through a computer application. The client specified that the application is to be used by coaches and players of paddle ball to review technique. The problem statement was identified as such: to design a user-friendly app for the client, Manit Ginoya, to measure the precise position of the ball in Paddle ball matches at any given time on the court and translate this information into a 3D, real-time representation that is saved for post-match analysis.

1. INTRODUCTION

Trainers and players are searching for a tool to help them progress their paddle-ball skills. Padel ball is a relatively new sport which is a combination of squash and tennis. It is usually played in an enclosed court surrounded by walls of glass. Players would like to be able to go back and analyze their own gameplay, and trainers would like to provide more help to their players through post-match analysis. With advancing technology, it is time that paddle-ball trainers and players took advantage of these newly available resources. To provide this advantage, the client has expressed the need for an application where athletes and trainers are able to record gameplay or practice sessions which are viewed through a digital replica of the match. The application should be able to record data from a real paddle ball match and display trajectories and (x,y,z) positions of the ball, as well as calculate the force each shot was hit with during the match. Such technology will allow athletes to analyze their own skills to a greater extent. The final goal is to be able to provide an application which satisfies all the needs stated by the client. The following information includes an outline of the client's needs, project further clarifications, and a problem statement to summarize everything together.

2. CLIENT NEEDS

The client requires an application accessible by computer, which can record and analyze data from a real match for coaches and players to review techniques. This application should include a digital replica of the court and the travel path of the ball throughout the match. The application will be used primarily on indoor courts with the support of an on-court computer which runs the application. The client asked for post-match analysis of game analytics, which includes trajectories and the position of the ball throughout the match. Formatting of the application will be is similar to content included in other existing applications to be further analyzed. The application should be aesthetically pleasing and easy to navigate. It should include an instruction/user manual for users. The budget of this project is $50. The table below shows an overview of the overall needs of the client and is rated by the client importance (5 being the most important and 1 being the least).

Table 1. Revision of Client Requirements and Categorization of Importance

Need	Importance
Game data can be collected in real time from the match.	5
Software can accurately calculate the mechanics of the ball with each hit (trajectory, angle of hit, force of hit).	5
Object recognition software can identify the ball on the court.	5
Game footage can be recorded with data for later viewing.	4
Player statistics are recorded and organized.	4
Instruction Manuel is included.	3
Users can be shown what an ideal shot would look like	2
Aesthetically pleasing.	1
Works indoors and outdoors	1

3. PROBLEM STATEMENT

Our goal is to produce an application for the client, Manit Ginoya, that can measure the precise position of a ball during a Paddle ball match. The application will then translate this information into a 3D, real-time representation that is saved for post-match analysis.

4. FURTHER CLARIFICATION

a. Should the application be wireless?
b. Should the post-match data be only reviewable through digital replication or the actual recording?

5. CONCLUSION

It is concluded that the client has given us the task of creating an application that will measure the position of the ball during a paddle-ball match to allow post-match analysis.