

Creating A Wheelchair Basketball Computer Game

Mission / Intention

Avoidatrak first appeared on the IPRO list in 1998 as Opportunities in Assistive Technology. Inventor and entrepreneur, Julius Jones, Jr., conceived the idea of a toy that would help train disabled people, especially children, how to use motorized wheelchairs. Through the years, research and planning has lead the IPRO 306 to focus its technology on developing a wheelchair basketball computer game. This wheelchair basketball video game will provide enjoyment as well as educate those who play it. Creating this video game will increase awareness and interest in wheelchair basketball. A wheelchair basketball game could also help bridge the gap between able-bodied and disabled people by being a game that is fun for everyone to play. The game will also help educate able-bodied people on the abilities of people with disabilities. **Most important a wheelchair basketball game could help improve the players' self-image and inspire them to reach their goals.** The purpose of this Summer 2004 IPRO was to do preliminary research and discover useful contacts for a Fall IPRO to begin designing Avoidatrak.

Organization & Meaning

The current plan is to incorporate wheelchair basketball teams from the international playing field as opposed to national, collegiate, local, etc. This will be done to maximize the target audience and to create awareness and appreciation on a global level. The Purpose of the International Wheelchair Basketball Federation is to provide opportunities worldwide to those who are disabled. A goal of the International Wheelchair Basketball Federation is to implement an organized marketing program that involves communication, public relations, and demonstration events to instill awareness to the general public of the benefits of wheelchair basketball.

Psychological aspects:

In order to better create a wheelchair basketball computer game it is important for those involved to understand its meaning. This includes understanding the significance of wheelchair basketball to players and spectators so that considerations can be made as to how the characters in the game should be depicted. Wheelchair basketball gives people with disabilities a chance to play sports as well as boosting their self-esteem. It also gives them greater confidence in everything in their lives. Wheelchair basketball gives the players an outlet and a constructive way to vent their frustrations. Being involved in wheelchair basketball gives the player a second family. This second family is one that not only cares about them but understand their triumphs as well as their hardships.

What to incorporate into the game:

- **Use of International teams:** Having an association with International leagues is highly suggested because it would allow for variations of settings, appearances, and experiences. Using International leagues would educate people not only about wheelchair basketball but also about all of the different types of people around the world.
- **Appearances of players:** In order to use the faces of real people they must be given some type of royalties. Due to financial obligations it is best to use generic faces for the players in the game. In addition, both sexes will be incorporated into the game to make it more appealing to all audiences.

Medium of Depiction:

Most of the information concerning the psychological aspects of wheelchair basketball cannot be implemented into a computer game. Simpler aspects that can be included are those that can be found in other basketball computer games involving responses of characters to plays.

- The characters can make **automated comments** throughout the game. It is suggested that players or the coach be programmed to respond to plays made by the characters.
- The **sounds** the audience makes and the music, if any, can also be important for the game and should be considered.
- Options for the **age of the characters** ranged from young adolescents to middle aged adults. This enabled the possibility for similarities with the characters and the gamers. It also allowed the variation of skill and competitiveness.
- **Character appearances** was considered through a psychological perspective. An option addressed was basing the characters on real players. This would allow people to choose their favorite players which would make the game more exciting. However, this did not seem reasonable considering that the sport is not popular enough and does not have a significant following.
- **Designing various characters** with general features that could be customized was an alternative option that was agreed to be a better choice. As for the gender of the players it is suggested that there be options for teams with all males or females, or both. Decisions concerning characters should be further addressed after considering limitations in programming.

The Game

In Avoidatrak, there will be four modes of play that increase in difficulty of control and player skills and requirements. There are also other considerations that can be added at the designers'/programmers' discretion.

Training/Practice mode

- An optional "Coaching" mode which corrects mistakes and offers tips
- Ability to select the three different control modes
- Able to play with or without opponents so players can learn both control and strategies.

Mode 1: ("minor")

- Full mobility of all characters with respect to wheelchair physics
- Simple mobility controls: forward, reverse, turn
- An automated steal mode
- No team commands

Mode 2: ("Major")

- A point system in which players with more mobility cost more than others
- Controls become more complicated
- Two pressure sensitive buttons (e.g. a Sony controller) control speed for forward and reverse in addition to a brake button. This would allow for more maneuvers.
- A more restrictive fouling system in which any contact between chairs is now a penalty.
- Stealing now requires maneuvering and button pressing.

Mode 3: ("Pro")

- A more advanced control system. Each wheel has a separate forward and reverse.
- A team-management system in which commands and formations can be issued

Interface

- **Novice** –Uses single joystick to control wheelchair
- **Advanced** –Uses 4 pressure sensitive buttons to simulate forwards/backwards m for each wheel
- **Expert** –Uses 2 directional analog sticks to allow a motion simulating that of rot actual wheels

- **1 through 4:** four pressure sensitive buttons
- **5 and 6:** bi-directional rotating controllers



Recommendations for Fall 2004 IPRO.

Concentrate on the fact that this game is unique and appealing

- The game should focus less on the one-on-one aspect that able bodied basketball emphasizes.
- Emphasize defense to make the game more exciting: quick, crisp passing, chair positions
- Incorporate wheelchair tricks: tilting the wheelchair to make player reach higher, quick twisting turning

Continue interaction with the wheelchair basketball players and coach

- Try to contact spectators to see what they find appealing to watching the game
- Try to find AB players that play with wheelchair basketball players
- Model game players off of real life wheelchair basketball players

Recommend that the game be set in the international arena

- This increases the appeal of the game and simplifies the formation of teams: ex. United States v. Canada
- This also expands the available pool of players available if the future IPRO teams decide to use real life players.

- The teams start off playing in regional tournaments and as the game progresses play in national tournaments and international tournaments.

- Possibly incorporate sponsorship into the game. As the team progresses, larger sponsors contribute to the team.

Usage of both female and male wheelchair basketball players

- There should be three types of teams: All male, all female, and teams with both male and female characters.
- The game characters should also be able to grow as the game progresses.

Considerations in the Game perspective:

- A coaching system that would allow a player to either receive, advise or turn over control of teammates to a progressively smarter coach
- A buying/trading system to obtain better players and coaches
- An experience system that increases your characters abilities (shooting, passing, speed, maneuverability)

