

USE CASE: "TAKE A TURN"

Ricochet Robots Project

Group #6:

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Primary Actor: Player

Stakeholders and Interests:

- Player: wants the game to work properly, be easy to use, entertaining, and possible to win.
- User: wants the game to be set up properly, and all the menus and settings to be functional.
- Parent: wants the game to be appropriate for their children playing the game.
- Team Member: wants to design, implement, and test the game to ensure it is working properly.

Preconditions: The game has been set up and is running with active players.

Success Guarantee (Postconditions): Any necessary robots have been moved and the colour markers are placed on the same space as the robot matching its colour. If a player was successful at demonstrating a solution, the player's score has been increased. The system is ready either for the next player to take a turn or for the game to end.

Main Success Scenario:

1. The system notifies the player whose turn it is to play.
2. The system randomly selects a target space, which has a colour that corresponds to the colour of one of the robots. [Alt1: Multicoloured vortex chip]
3. The system starts a timer and prompts the player to enter the lowest number of moves they think it will take once the timer ends, and also offers the player the ability to get a hint. [Alt 2: Player asks for hint]
4. The player attempts to determine the lowest number of moves, while following the rules of the game, to move the robot of the colour matching the target space to the target space and then provides the system with that number. [Alt 2: Player asks for hint]
5. The system starts a timer and prompts all the players to enter what they think is the fewest number of moves to move the robot to the selected target space once the timer ends. The original player can enter another number, but it must be lower than the number they entered before. [Alt 2: Player asks for hint]
6. When time runs out, the system alerts the players and prompts the player who entered the lowest number to demonstrate their solution by moving the necessary robots. The colour marker for each robot must not move.
7. The player that is the selected player moves the necessary robots to demonstrate their solution and eventually moves the desired robot to

the target space. [Alt 2: Player asks for hint] [Alt 3: Player fails to demonstrate solution]

8. The system moves each colour marker to the space where the robot of its matching colour is now located. [Alt 4: None of the players successfully demonstrate a solution]
9. The system keeps track of which player was successful and increases their score.
10. The system is prepared to either start the next round or end the game and use case ends.

Alternative Flows:

Alt 1: Multicoloured vortex chip

1. The player attempts to determine the lowest number of moves, following the rules of the game, to move a robot of any colour to the target space and then enters that number.
2. Flow resumes at Main Success Scenario Step 3.

Alt 2: Player asks for hint

1. The system provides a hint to the player to help them find a solution
2. Flow resumes at the step this alternative started from.

Alt 3: Player fails to demonstrate solution

1. The system moves all robots back to their original positions from before the turn started, to the spaces where their matching colour markers are located.
2. The system finds the player that entered the lowest number of moves out of the remaining players that have not yet attempted a solution. This number will be either greater than or equal to the number attempted previously.
3. Flow resumes at Main Success Scenario Step 5.

Alt 4: None of the players successfully demonstrate a solution

1. The system moves all robots back to their original positions from before the turn started, to the spaces where their matching colour markers are located.
2. Use case ends.

Exceptions:

- If at any time the user exits the system, then the use case ends.

Special Requirements:

- Colour palette for people with vision colour deficiency.

Open Issues:

- Should we include the silver robot?
- How should the system provide hints?