USE CASE: “MOVING A ROBOT”

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 options 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: System has been set up properly. Therefore, the board is displayed and has all the necessary objects on it, including the robots, colour markers, target spaces, and barriers. Also, the number of human players has been chosen and there is a set difficulty level and colour palette.

Success Guarantee (Postconditions): The robot selected by the player is now moved to a new location that follows the rules of the game.

Main Success Scenario:

1. The system allows the player to select which robot they would like to move out of the four coloured robots and the silver robot.
2. The player selects the robot that they want to move and informs the system of their choice.
3. The system receives this information and allows the player to move the selected robot.
4. The player indicates which direction (left, right, up, or down) they want to move the robot.
5. The system moves the robot in the direction indicated by the player until it hits either the edge of the board, a barrier, or another robot, and then stops the robot there, displaying its new location to the user. [Alt 1: Robot cannot move in given direction] [Alt 2: Robot hits a coloured diagonal barrier that matches its colour]
6. The system records that a move was successfully made and adds it to the total number of moves made so far for the current solution and the use case ends.

Alternative Flows:

Alt 1: Robot cannot move in given direction

1. The system recognizes that there is an object (edge of the board, a barrier, or another robot) in the space next to the selected robot in the given direction and therefore it cannot be moved in that direction, so the system does not count it as a successful move.

2. The system allows the player to choose a different direction to move the robot in.
3. Flow resumes at Main Success Scenario Step 4.

Alt 2: Robot hits a coloured diagonal barrier that matches its colour

1. The system recognizes that the robot has hit a coloured diagonal barrier and compares the colour of the robot to the barrier in order to see that they are the same colour.
2. The system changes the robots direction 90 degrees in the direction indicated by the barrier.
3. The system continues to move the robot in the new direction until it hits either the edge of the board, a barrier, or another robot, and then stops the robot there.
4. Flow resumes at Main Success Scenario Step 6.

Exceptions:

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

Special Requirements:

- Colour palette and any other necessary accessibility features for people with vision colour deficiency.

Open Issues:

- Should we include the silver robot?