Use Case Name: Move a robot piece

Primary Actor: User(s)

Stakeholders and Interests:

-The players should know who won the round
-The players should be shown the shortest possible path

Preconditions

-A target square has been selected
-All human players are aware of which target square has been selected
-The system knows the location of all robot pieces
-At least one bid has been placed by a player before the timer runs out
-The timer has stopped

Success Guarantee:

-The robot piece belonging to the player whose turn it is has moved to the square as a result of the path chosen
-The player who won the token piece has their score updated
-The token piece won has been removed from the board
-The system indicates it is the end of the round/beginning of the next round/end of the game

Main Success Scenario:

1. The system compares all the players' bids with the calculated smallest number of moves it would take each respective robot to get to the target square
2. The system selects the player with the lowest bid *[Alt 1: All 4 players have the same bid]*
3. The player moves the robots until the number of moves he bid is exhausted. The other players have the opportunity to bid a lower score than the bid of the current player. *[Alt 2: At least one player has bid less than the current player.]*
4. The player reaches the target tile with the number of moves he bid *[Alt 3: The player fails to reach the target tile with the number of moves he bid]*
5. The System checks whether the player had any invalid moves *[Alt 4: The player has made an invalid move]*
6. The System moves the robot to the target tile.
7. The system notifies the players who won the round
8. The system moves the winner's robot piece to the target square, demonstrating the shortest path to the target square
9. The system updates the winner's score.

Alternate Flows:

Alt 1: All 4 players have the same bid

1. The System selects the player who bid first to play
2. Steps 3 to 8 of the main success scenario are carried out

Alt 2: At least one player has bid less than the current player.

1. The main success scenario is completed.
2. The player with the lowest bid is selected among the other 3 players.
3. The selected player moves the robots until the number of moves he bid is exhausted
4. Steps 4 to 8 of the main success scenario is repeated

Alt 3: The player fails to reach the target tile with the number of moves he bid

1. The player with the next lowest bid is selected.
2. The selected player moves the robots until the number of moves he bid is exhausted.
3. Steps 4 to 8 of the main success scenario is repeated.

Alt 4: The player has made an invalid move

1. The player is prompted with a message saying that the move was invalid.
2. The player with the next lowest bid is selected.
3. The selected player moves the robots until the number of moves he bid is exhausted.
4. Steps 4 to 8 of the main success scenario is repeated.

Exceptions:

In the case of 4 human players, if only one player makes a bid before the timer runs out, they automatically win that round if they can prove it, regardless of whether they choose the shortest path or not.

Special Requirements:

-Robots should not be able to go through barriers

Open Issues:

-How would the demonstration of the shortest path be implemented?