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| **Use Case Name** | **Join waiting lobby** |
| **Description** | A mobile client initializes a connection to the server. |
| **Precondition** | The server software is running. |
| **Primary Actor** | Mobile user |
| **Secondary Actors** | None |
| **Dependencies** | None |
| **Basic Flow** | 1. The mobile user initiates a connection to the system through standard internet protocol. 2. The system responds with an acknowledgment to ensure the connection has been established. 3. The mobile user provides a user name to identify them in the current session. 4. The mobile user is added to end of the rotating list of active users. 5. The mobile user is presented with the server lobby (a list of connected user names and a chat window). |
| **Post Condition** | The mobile user is identified by a unique user name and is added to the server lobby. |

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| **Use Case Name** | **Send chat message** |
| **Description** | A mobile user sends a chat message to be displayed to all other connected mobile users. |
| **Precondition** | The mobile user has established a connection to the server. The mobile user is either in the game lobby or in a running game. |
| **Primary Actor** | Mobile user |
| **Secondary Actors** | None |
| **Dependencies** | None |
| **Basic Flow** | 1. The user enters a string of text to be displayed to other mobile users. 2. The system displays the text message to all connected users along with the user name of the originating mobile user. |
| **Post Condition** | The chat message is displayed on the mobile client of all connected mobile users. |

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| **Use Case Name** | **Opt-out of robot control** |
| **Description** | A mobile user who wishes to spectate rather than control the remote robots may choose to opt-out of robot control and become a pure spectator. |
| **Precondition** | The mobile is user is in the game lobby. A game is not currently in progress. |
| **Primary Actor** | Spectator |
| **Secondary Actors** | None |
| **Dependencies** | None |
| **Basic Flow** | 1. The user selects an option (checkbox) to opt-out of robot control. 2. The user is identified in the waiting lobby with a “(Spectator)” tag next to their user name. 3. The user is moved to the bottom of the lobby waiting list. 4. When a game is launched, the user is not considered for pairing to a remote robot. |
| **Post Condition** | A spectating mobile user will never be placed in control of one of the remote robots. |

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| **Use Case Name** | **Select game type** |
| **Description** | A player selects the type of game to play prior to starting a new game. |
| **Precondition** | The player is in the game lobby. The player has not opted-out of robot control (not a spectator). A game is not currently in progress. |
| **Primary Actor** | Player |
| **Secondary Actors** | None |
| **Dependencies** | None |
| **Basic Flow** | 1. The player is presented with a selection (drop down box) of all supported game modes. 2. The player selects one of the provided game modes. 3. The selected game mode is displayed in the waiting lobby to all connected users. |
| **Post Condition** | When a game is launched, the selected game mode will be used unless another selection is made before the game begins. |

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| **Use Case Name** | **Register robot for remote control** |
| **Description** | A remote robot connects and registers with the system. |
| **Precondition** | The server software is running. |
| **Primary Actor** | Robot |
| **Secondary Actors** | None |
| **Dependencies** | None |
| **Basic Flow** | 1. The robot initiates a Bluetooth connection with the server. 2. The robot sends a string indicating which version of the command and positioning protocol it supports. 3. The system responds with an acknowledgement. 4. The robot is added to the system’s list of active remote robots. |
| **Post Condition** | The robot will be considering for pairing to mobile users after registration has completed. |

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| **Use Case Name** | **Unregister robot for remote control** |
| **Description** | A remote unregisters from remote control and disconnects from the system. |
| **Precondition** | The robot has been previously registered for remote control. |
| **Primary Actor** | Robot |
| **Secondary Actors** | None |
| **Dependencies** | INCLUDE: **End game** |
| **Basic Flow** | 1. The robot sends an “END” signal to the system. 2. The system responds with an acknowledgment. 3. The Bluetooth connection is torn down. 4. Any game in progress using the robot is ended (INCLUDE USE CASE **End game**). |
| **Post Condition** | The system does not consider the robot for any further pairing with remote users. The remote may be disabled once it has unregistered from the system. |

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| **Use Case Name** | **Pair player to robot for remote control** |
| **Description** | A specific player is paired to a specific robot for the duration of a single game. Any commands from the player will control only the robot paired to the specific player. |
| **Precondition** | A currently unused robot and unpaired player must be connected to the system. A game is not in progress. |
| **Primary Actor** | Player |
| **Secondary Actors** | Robot |
| **Dependencies** | None |
| **Basic Flow** | 1. The system selects the first player in the waiting lobby to be paired to a robot. 2. The system selects the first available robot to be paired to the player. 3. The system flags the robot as “in use” (only one player can control a robot) 4. The system moves the paired player to the bottom of the waiting list of players (provides rotation of robot use when more players than robots are connected). |
| **Post Condition** | All further commands from the paired player are propagated only to the paired robot. |

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| **Use Case Name** | **View video feed** |
| **Description** | A live video feed of the “arena’ containing the remote robots is displayed to all connected remote users. |
| **Precondition** | At least one mobile user and robot is connected to the system. A game is in progress. |
| **Primary Actor** | Mobile User |
| **Secondary Actors** | None |
| **Dependencies** | None |
| **Basic Flow** | 1. The system’s camera is activated and a stream is established to the system. 2. The video stream is broadcasted to all connected mobile users. |
| **Post Condition** | The video stream is visible on the mobile client of all connected mobile users. |