Interaction and Design Class Models
Comp 361 Project

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1 New Game

When a new game is created, a `system` Game Object (which is a singleton), which creates a new Grid Game Object (also a singleton). The Grid then creates Cells, as indicated in the diagram.

1.1 Cell Types

When the Grid creates Cells, in the `initCell(x, y, cellType)` method, cells are assigned a `CellType` enum that is either reef or empty. During the game, the cell's type will be set to one of occupied, mine, or empty.

2 User Interaction

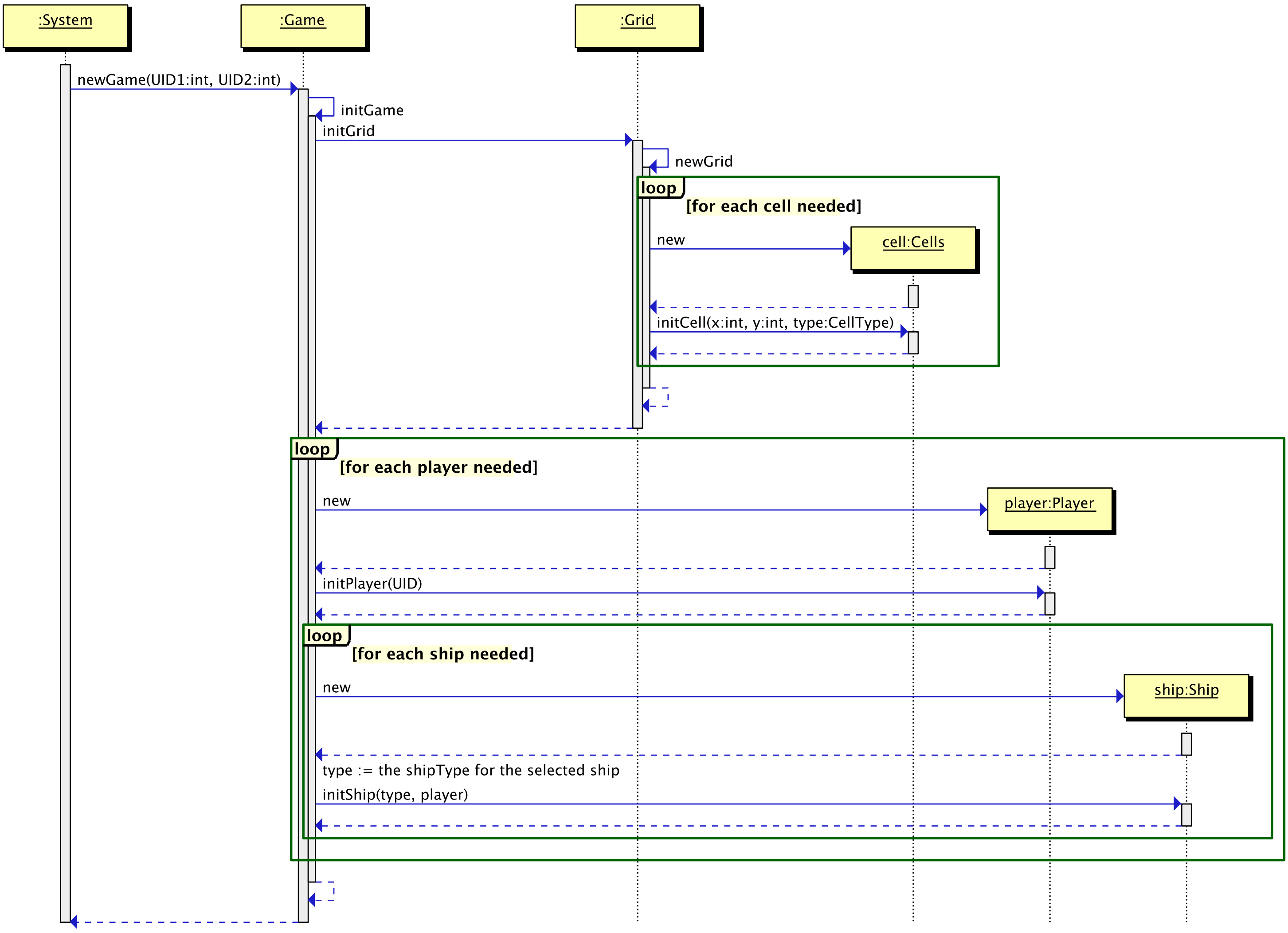
Messages that would be displayed to the User have not been included in our diagrams, since message display does not affect game mechanics. These display calls are handled by the system.

3 Damage

Damage is handled internally by the `Ship` class.

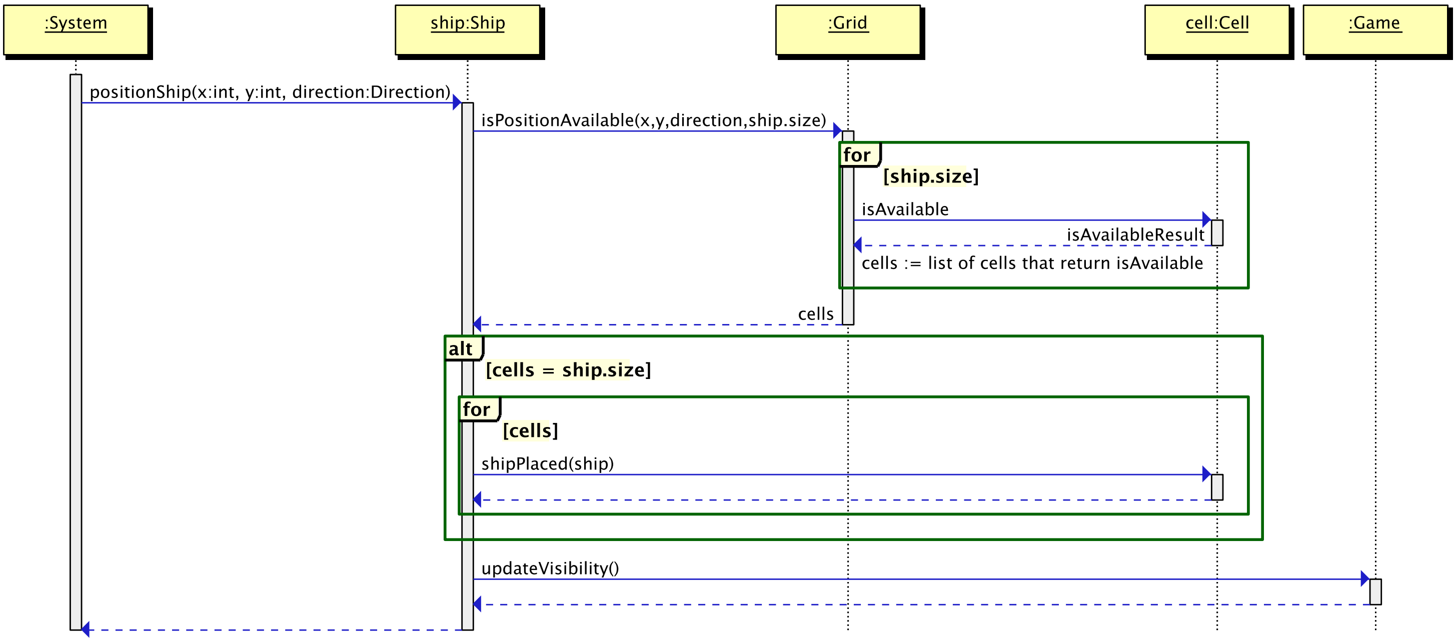
4 Move Ship

During ship movement, cells in the ship's path, as well as the cells adjacent to the ship's path, are checked for mines. This includes the cell one space in front of the ship's endpoint.



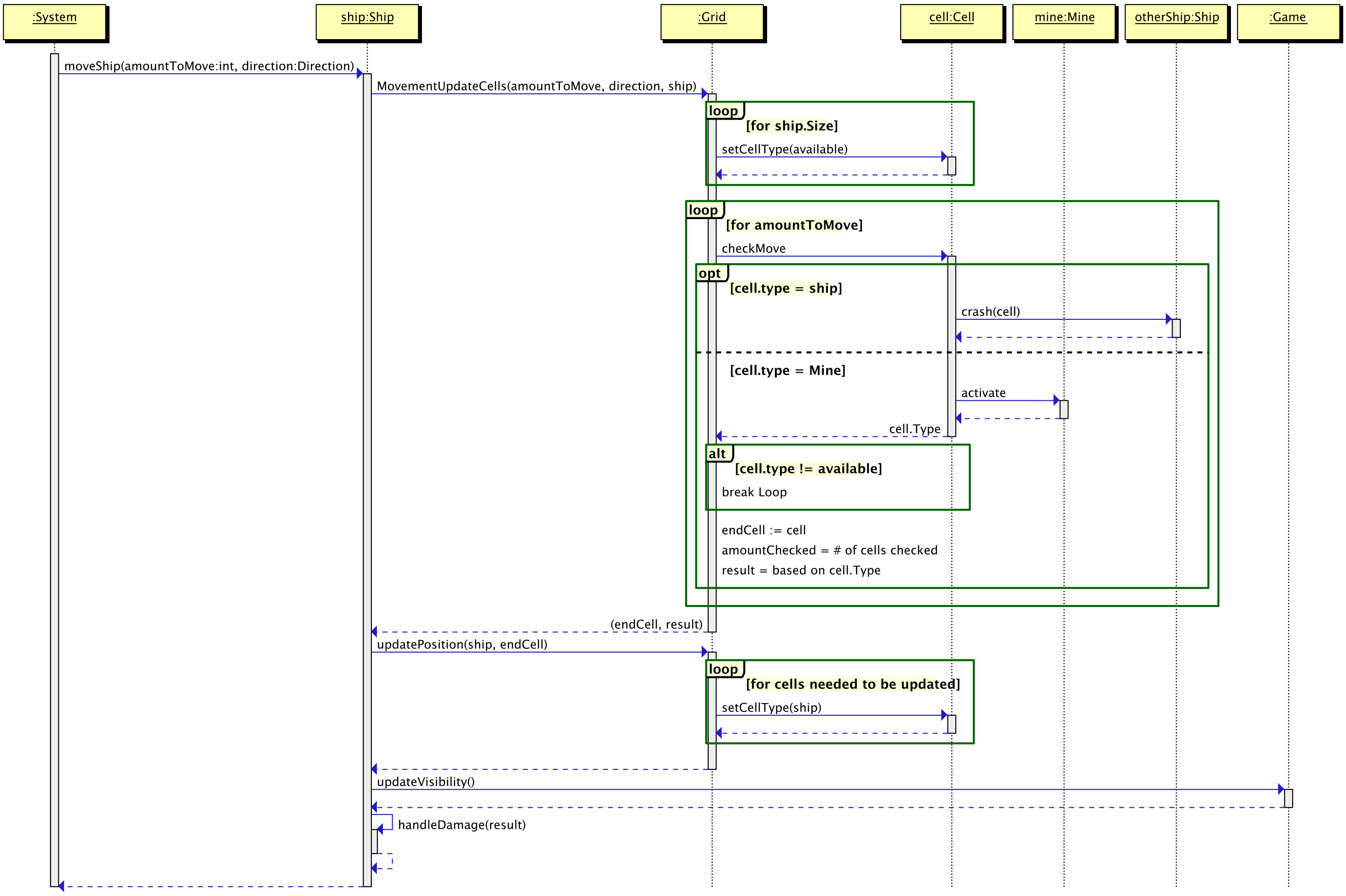
The controller for newGame is the Game object. It is a system-wide object that handles the general flow of the game.

The UID parameters represent the unique ID of players which links the in-game player to their stats.



The controller of positionShip is the ship itself. We have decided to keep all movement functionality in regards to Ship within itself.

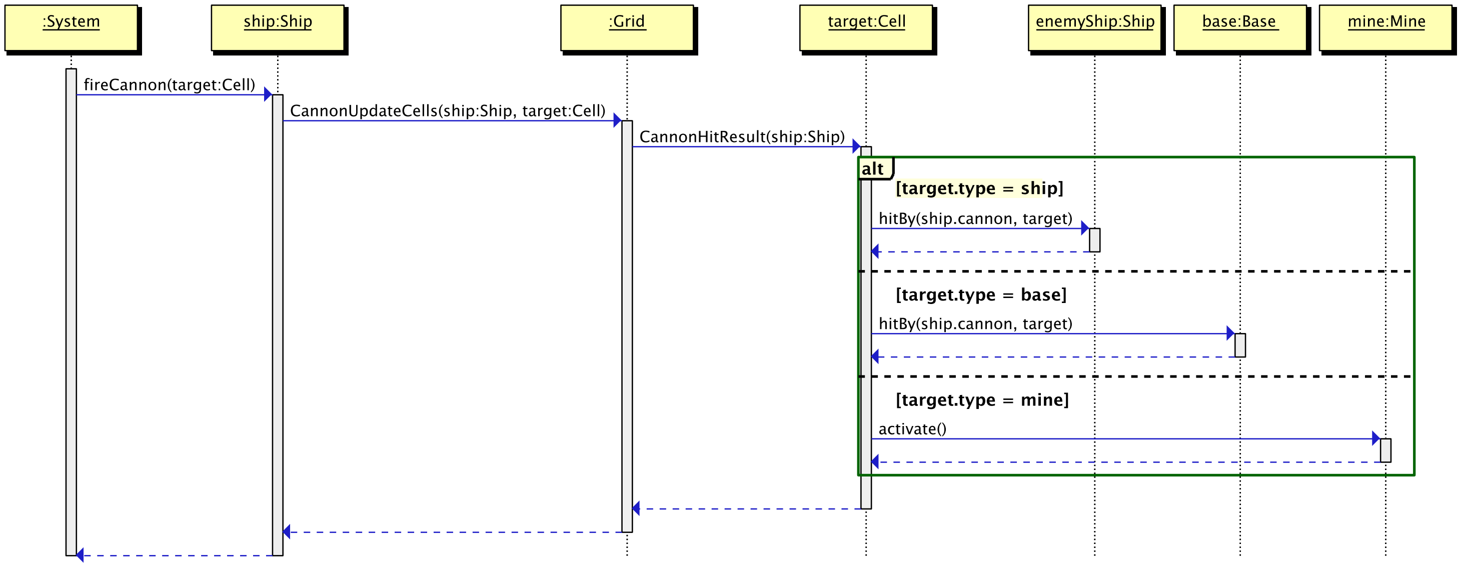
Direction will be a simple enum stating the direction the ship is facing.



The controller of moveShip is the ship itself. We have decided to keep all movement functionality in regards to Ship within itself. For moveShip, a lot of the outcomes are reflected directly within the ship moving.

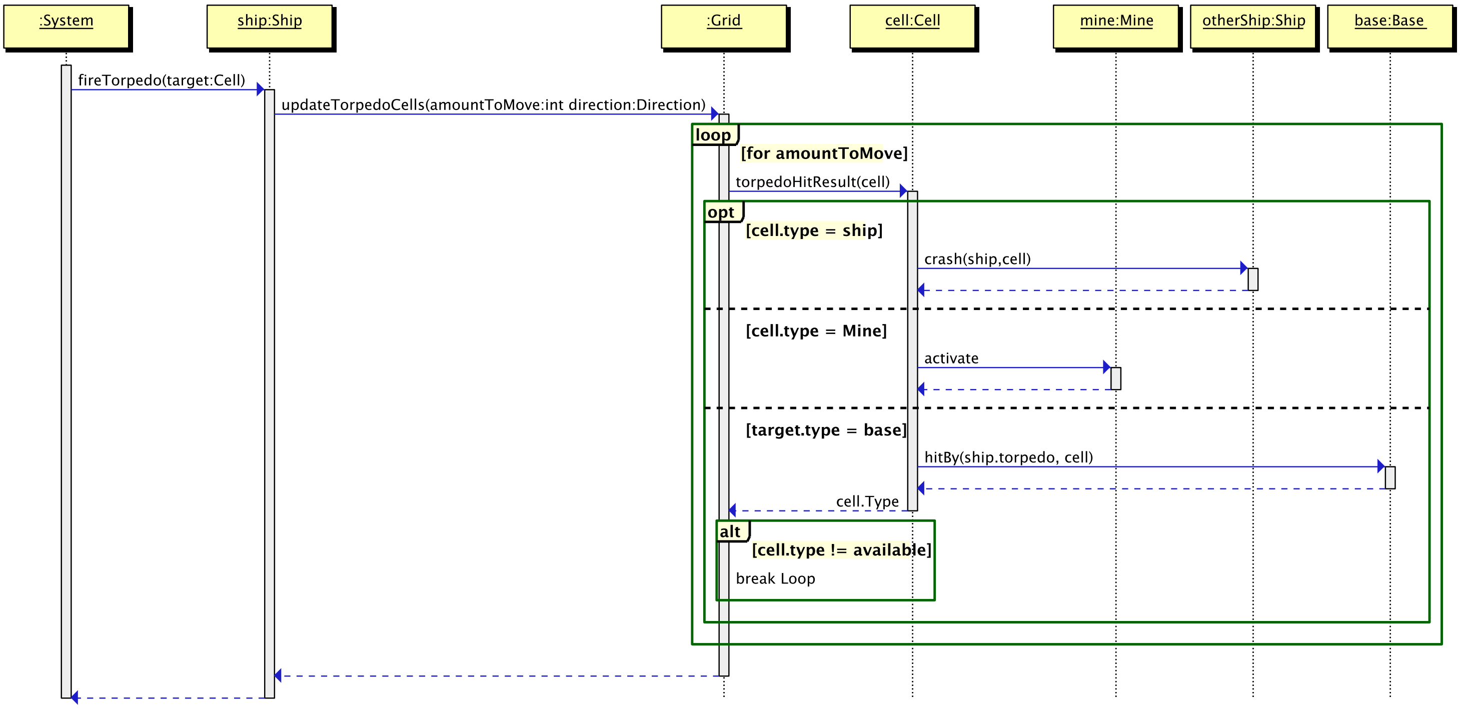
Direction will be a simple enum stating the direction the ship is facing.

cannon____ will cause the system to broadcast a message.



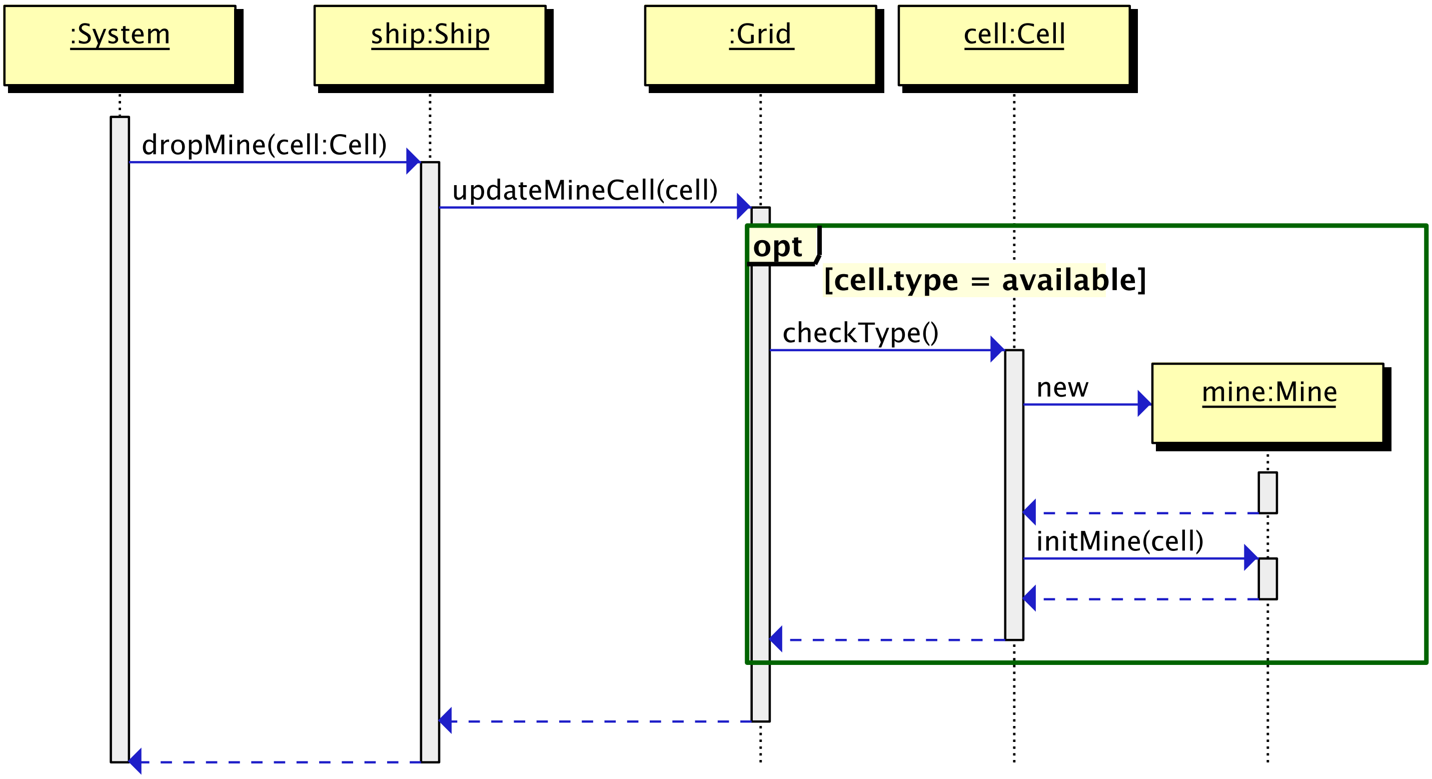
The controller of fireCannon is the ship. This is because it is an action between the ship and the grid.

The cell parameter is a reference to the cell that the ship desires to fire the cannon at.



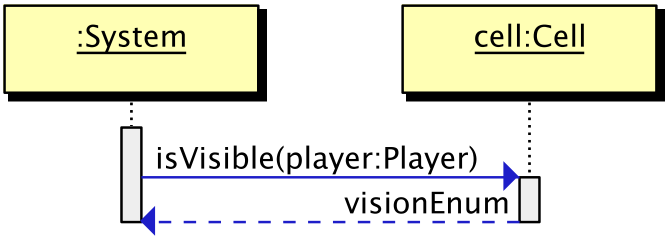
As before, the controller of fireTorpedo is the ship. This is because it is an action between the ship and the grid.

The cell parameter is a reference to the cell that the ship desires to shoot the torpedo at.



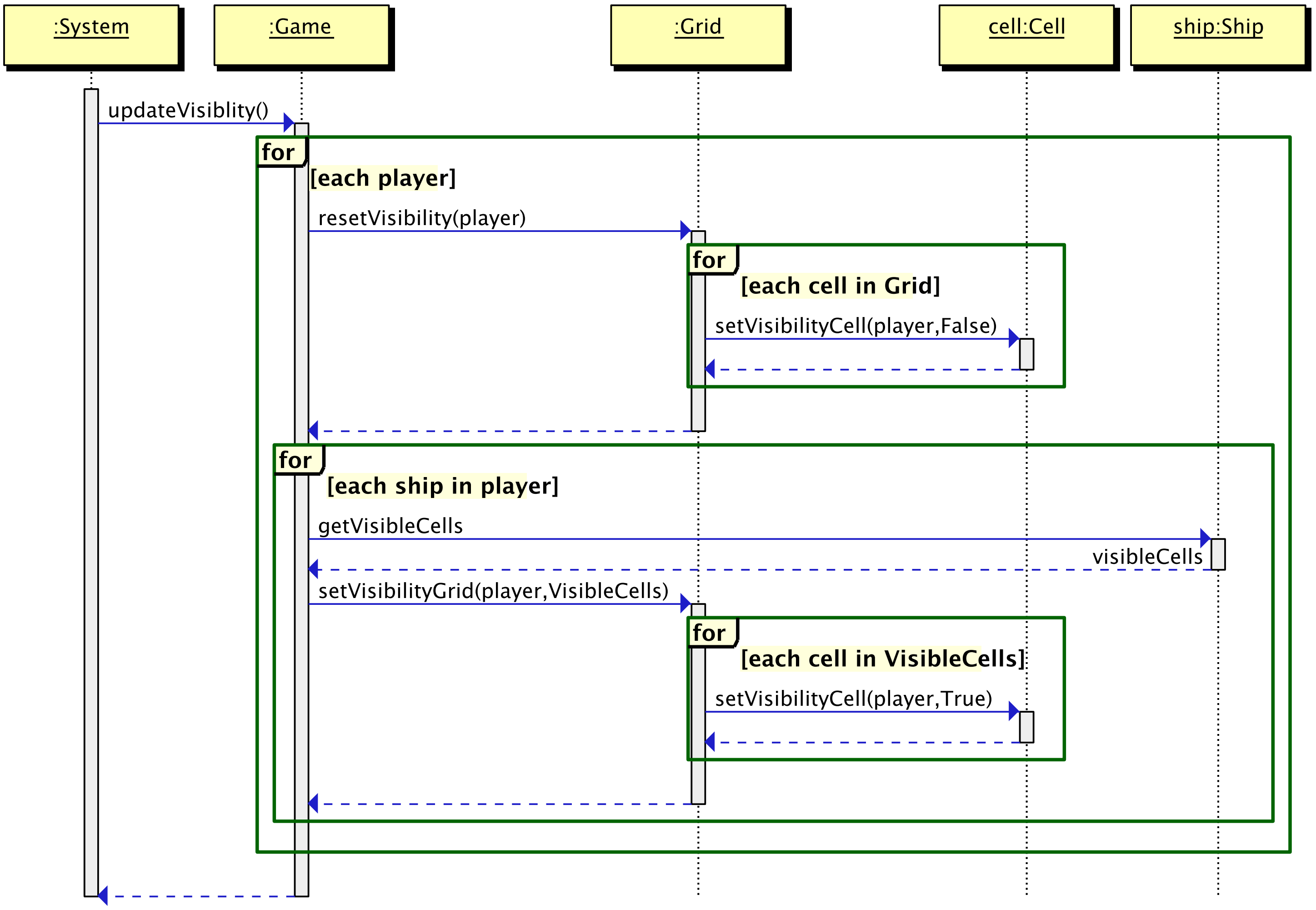
As before, the controller of dropMine is the ship. This is because it is an action between the ship and the grid.

The cell parameter is a reference to the cell that the ship desires to drop the mine on.



The controller of isVisible is the cell itself. The reason is that the cell has a reference within itself to the players that have vision of that cell.

The player parameter is a reference to a player that the system is asking about.



The game is the controller of updateVisibility as this function is run as part of the game loop. Whenever a turn finishes, visibility is always updated.