Virtual Water Flight

# Functional Requirements

1. A player can register or de-register itself with the fight manager at any time.
2. A player can move around in a physical space, as long as the following constraints are observed
   1. The rate (distance / time) at which a player can move is limited.
   2. A player can’t move if it is trying to get a balloon from the balloon manager or fill a balloon from the balloon manager.
3. The fight manager has to be able to ask a player for its current location and player has to response with its current location within 10ms.
   1. If player does not respond with its current location within 10ms, the fight manager will remove it from all games and de-register it.
   2. If player responds with new location that violates any of the constraints mentioned in Requirement #2, then the fight manager will remove it from all games and de-register it.
4. A player can ask the fight manager for a list of current players.
5. A player can ask the fight manager for a list of player’s most recent known locations (up to 10).
6. A players has to be able to instigate a fight at any time, regardless of what other fights are going
   1. A player instigates a water fight by telling the fight manager that it is throwing a balloon (with some water in it) at a player who is believed to be in a specified location.
   2. If the location of the other player is correct, then the player is “hit” with the water balloon and the fight begins.
   3. The instigator and player hit with the water balloon are automatic enrolled it the new fight
7. A player has to be able to join a fight at any time,
   1. A player can ask the fight manager for a list of fights in progress
   2. A player can ask the fight manager for a list of players in a specific fight
8. Players have to be able to fight concurrently with other players – there’s no systematic taking of turns
9. A player can request an empty balloon from the balloon manager, but only hold up to 4 balloons at a time
10. A player can fill an empty balloon by making a request of water manager to fill the balloon until it is to a certain percent full.
11. A player can throw a non-empty balloon at any player in a fight that the player is participating in.
    1. If the thrower throws a balloon at a player not in a fight with the thrower, then that may start a new fight. See Requirement #6.
    2. If the thrower get the other player’s location correct, then the player is “hit” with the amount of water in the balloon
12. Once a player is hit with more than 100 cups of water, then the player is removed from all fights and de-registered.