# Testing

#### Automation tests

We plan on turning each of these tests into a Unity Test. This will allow us to simulate the test in the closest form to a manual testing.

Our testing will be separated into unit testing and demo testing. In the unit tests we will attempt to check only a single function, and make sure it works as intended.

In the demo testing we will emulate a use case, to test that it works as intended.

**Unit tests:**

|  |  |  |  |
| --- | --- | --- | --- |
| Component Name | Goal | Input | Expected Result |
| Health system | Damage function reduce health | Ship with health of H,  Damage of D | Ship with health of H-D |
| Health system | Damage function cannot raise health | Ship with health of H, Damage of -R | Ship with health of H |
| Health system | Health cannot be negative | Ship with health of H, damage of M | Ship with health of 0 |
| Movement | Single call to movment | Vector3 P | Ship movement target is P |
| Movement | Multiple calls to movement updates destination on each call | Vector3 P1, a second call with a different P2 | Ship movement target is P2 |
| Movement | Movement target’s Z axis is always 0 | Vector3 P+{0,0,100} | Ship movement target is P |
| Movement | Movement target is unbound | Movement target changed to {-maxint, -maxint, -maxint} | Ship movement target is {-maxint, -maxint, 0} |
| Commands system | Issuing a command | “shoot” commnd toward V | Ship command is “shoot” toward V |
| Commands system | Updating command | “shoot” command toward Vector3 V1, “shoot” command toward Vector3 V2 | Ship command is “shoot” toward V2 |

**Demo tests:**

|  |  |  |  |
| --- | --- | --- | --- |
| Component Name | Goal | Input | Expected Result |
| Turn system | Phase change | “end turn” | Phase change from “planning” to “execution” |
| Turn system | Phase change after a time | “end turn” | Phase change from “ planning ” to “ execution ”, after T seconds changes back to “pause” |
| Turn system | “end turn” in phase “execution” has no effect | “end turn”, wait Y seconds and issue “end turn” again | - |
| Movement | Reaching goal | Vector3 | After T seconds, Position=goal |
| Movement | Testing path indicator | Vector3 | For each step, distance(path, position)<0.001 |
| Movement | Order in “execution” phase has no effect | Vector3 | - |
| Shoot | Shooting a missile | “shoot” command towards Vector3 V | At “execution” phase, new missile created with destination V |
| Command system | Order in “execution” phase has no effect | “shoot” command towards Vector3 V | - |
| Missile explosion | Missile explodes on reaching goal | - | Missile destruction, explosion |
| Explosion damage | Explosion damages ships in R radius | Vector3 explosion, Vector3 ship, float radius | Ship health == Ship health -explosion.damage |
| Explosion damage | Explosion doesn’t affect ships outside R radius | Vector3 explosion, Vector3 ship, float radius | - |
| Ship destruction | Testing if explosions can kill ship | - | Ship destruction |
| Ship destruction | Test giving commands to a destroyed ship | “shoot” command towards Vector3 V | - |

#### Acceptance test

We will gather a group of people representing the players, let them play the game, and ask for their feedback about the main features and overall experience.