

Final exam AB-2010 (Episode 1/2)

Storyline

Do you remember peaceful town of UnrealVille from the Pretest? So in this very town, something terrible has happened. The town is being hunted by almost immortal Alien that threatens all its inhabitants. Alien is a monster that suck life-force, if you get too close you're dead. And even more! If you kill it, it will come to life again!

Scientists has studied this phenomenon and finally they have found out how to kill Alien once and for all. All that has left is to collect 50 blood samples, from which the scientists can create an Anti-Alien dose. Collecting these blood samples is very dangerous. That's why scientists are creating humanoid robot that should do the job... And guess what? You are one of those scientists given a task to create the robot's mind

Warning! Recent studies are suggesting that Alient will mutate in 3 hours and sucks all life in 1km diameter. You better get hurry!

Assignment

Your task is to create an agent that is able to collect 50 blood samples (adrenalines) from the Alien. These blood samples can be obtained in two ways. First, in the form of adrenaline capsules that can be found in the town or by killing an Alien. The Alien is an adversary agent that is lurking in the town. It walks slowly than your agent but is having endless ammunition and fires only from very close distance. Your agent is going to start without any weapons. If you want to hunt the Alien down or defend yourself, you will have to find some.

The whole scenario is going to happen on the map DM-UnrealVille-AB. The UT2004 will be running a specific mutator that is slightly changing the rules of the play (e.g., unlimited ammunition for the Alien, see Rules of play section)

Terms of exam

To obtain A for a final exam, the agent must fulfill these requirements:

1. The agent must be able to finish the scenario, i.e., it must be able to collect 50 blood samples (== adrenalines, see Rules of play section).
2. The agent must not walk around randomly, it must have a goal in mind. E.g., if it sees the adrenaline, it should go and get it, if it sees a weapon or ammo it needs, it should get it, etc.
3. The agent must be able to fight, i.e., if it sees the Alien and have loaded weapon, it will try to hunt it down.
4. The agent must be able to collect 50 blood samples in 10 minutes.

To obtain C for a final exam, the agent must fulfill this requirement:

1. The agent must be able to finish the scenario, i.e., collect 50 blood samples.

To obtain C, the agent may run around randomly (but this will hardly solve the scenario). To obtain B, you will have do better than that. To obtain A, the agent must be clearly proactive and correctly switch between various goals it needs to pursue.

Template project

In contrast to the Preset, you will be given a template project that has all needed behavior primitives (actions, senses) already implemented. All you have to do is to create a high-level plan. Of course you are free to adjust any primitive you want, but it is not necessary to do that. We recommend you to take a time to read through their javadocs.

Rules of play

1. One item of type adrenaline (`ItemType.ADRENALINE_PACK`) will give you 5 units of adrenals (== 5 blood samples).
2. Killin the Alien will give you 5 adrenals as well.
3. Adrenals are respawning after 60 seconds from pick up.
4. Other items are respawning after 20 seconds from pick up.
5. In the map, only weapons of `ItemType.FLAK_CANNON` and ammunition of `ItemType.FLAK_CANNON_AMMO` can be found. Both weapon and ammo item will give you only 1 unit of the flak cannon ammunition.
6. Flak cannon can have 5 ammo at max, you can't have more of them.
7. Alien is running around the map randomly, but if it see the agent, it will try to hunt it down. When it gets to the distance less than 200 Unreal units, it will fire (it also has flak cannon, which means it will kill your agent instantly from that distance).
8. If your agent dies, it loses all ammunition, weapons and adrenals. So do not do that!
9. Alien is not collecting any items – if it runs through them, nothing will happen.
10. Whenever you collect 50 adrenals, you win.
11. You have 3 hours to create the high-level behavior, good luck!

Additional rules of play (just like in D&D ;-)

1. Your agent won't know locations of items in the town. You will receive only navigation graph from `GameBots2004`. So that means that methods `Item.getNavPoint()`, `NavPoint.getItem()` and `NavPoint.getItemInstance()` returns null. You can use `NavPoint.setItem()` a `Item.setNavPoint()` to compensate for that.
2. You can use sample projects from Pogamut and all agents that we have been creating throughout the practices, but we do not guarantee their functionality.
3. You must not use OWN, pre-created bots.
4. You must not use command `Respawn` to move around in the town or in any other manners.
5. You must not use "String" ids of navigation points for the inference of their types or use methods `NavPoint.isItemSpawned()` a `NavPoint.isInvSpot()`.
6. You must not alter `GameBots2004.ini`, to run GB2004 use only `start-scenario.bat`, that will also start the Alien.
7. It is forbidden to use "Alien" as a name for your bot.