

ID2209 – Distributed Artificial Intelligence and Intelligent Agents

Assignment 1 – Festival Simulation

Group 24

Name: Adithya and Shounak

Date: 09.11.2020

It's the season of Diwali and people are visiting the Central Hub to enjoy and have fun with their friends. A similar scenario has been created in this assignment where people are just roaming around, eating, drinking while having fun and enjoying the fest.

Agents

Festival guests

One of the intelligent agents in the assignment has been created as festival guests. These guests are the ones who are just roaming around, eating and drinking from the nearby bars and restaurants. Most of the time it is expected they will be just having fun and wandering. However, each of the guests feels hungry or thirsty at some point of time, and then they search for the places to eat and drink. To meet the requirements of the guests so that they could have a good time, we have an Information Centre in the center of the Hub and few eating and drinking stalls in the area. And the good thing is as soon as the guest enters the hub, they are provided with the information of the location of the Information Center. So, the festival guests are expected to know the location of the Information Center by default.

Information Center

This agent holds the information of the location of the bars and restaurants present in the Central Hub. So, whenever any guest is hungry or thirsty it rushes towards the Information Center to seek the location information of the stores. Now once they are aware of the bar or restaurant location, they head towards the store to quench or satiate their thirst or hunger respectively.

Stores

Each of the festival guests has the traits of hunger and thirst ,which get drained apparently as the festival wears on. To replenish their hunger and thirst they now visit the shops which sell food and drink. These are multipurpose resto cafe type shops which sell both drinks and food. The festival guests communicate with the information center and seek for the location of these agents.

Task

All the above mentioned agents have been initialised as Species. Festival Guests have been provided with a skill known as 'moving' and also been defined with different reflexes in the Gama software.

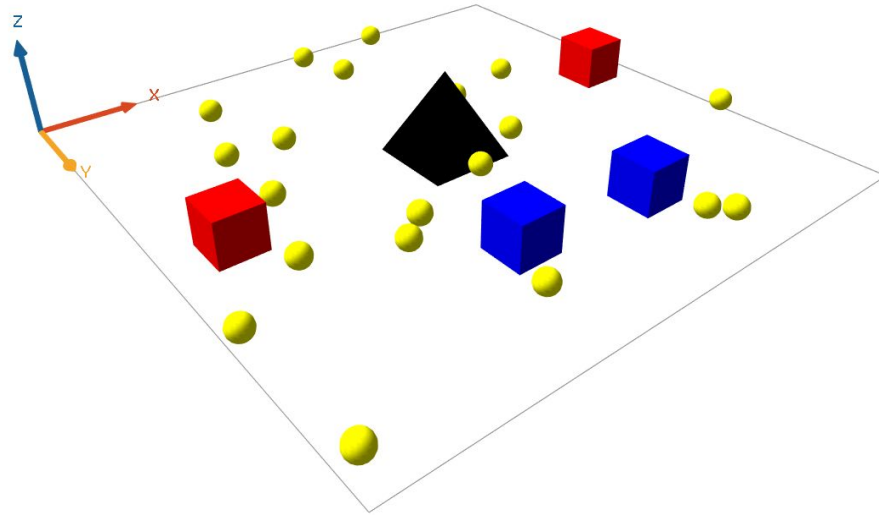
The "Moving" skill is defined by GAMA as the set of behaviours required for an agent to move to different topologies.

"Reflexes" are defined for the agent for the multiple scenarios that can arise. These are briefly described as follow :-

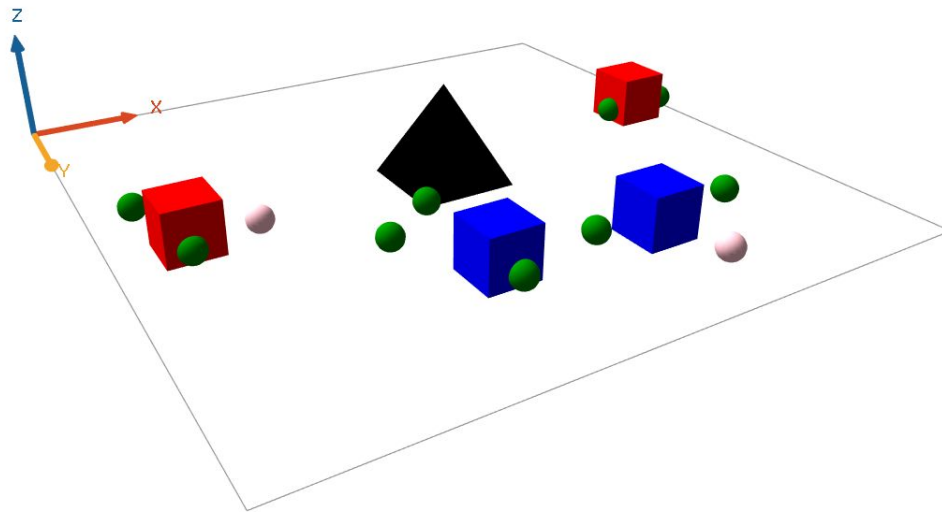
- *reflex beldle* - In this case, the agents are generally just enjoying the fest and wandering(do wander).
- *reflex goToInformationCenter* - In this case the agent goes to the Information Center to seek the location information of the store, whenever he is hungry or thirsty.
- *reflex goToStore* - In this case the agent goes to the store to quench or satiate the thirst or hunger respectively.
- *reflex increaseValues* - In this case, we are gradually increasing the hunger or thirst of the agent.

In the below figure, we have 20 sphere shaped Festival Guests, 4 cube-shaped Stores and 1 pyramid-shaped Information Center .

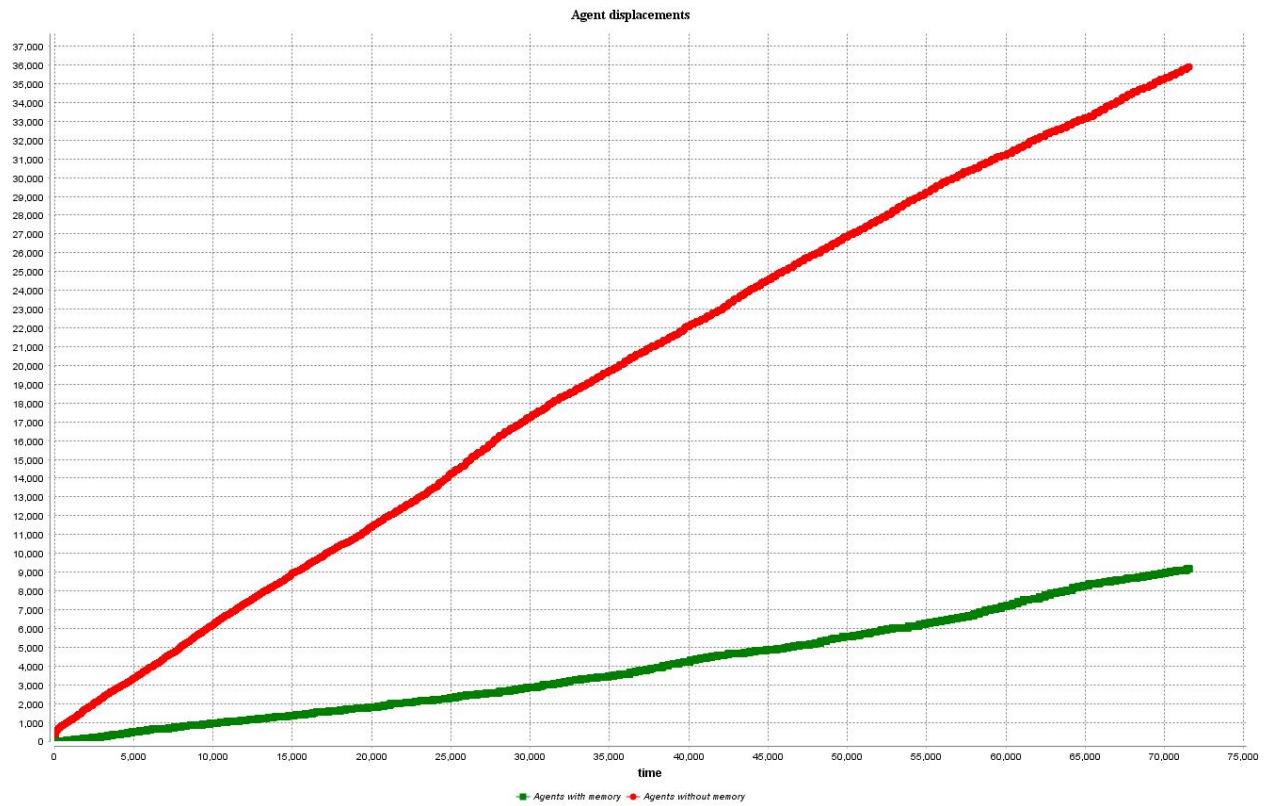
The guests and stores are randomly localized, whereas the Information Center is static and is fixed at the center. Initially the guests just wander around, until they are hungry or thirsty and feel the need to go to the Information Center to seek the location of the stores. Once they get the location information of the store, they would head towards the store in order to drink or eat.



Challenge 1

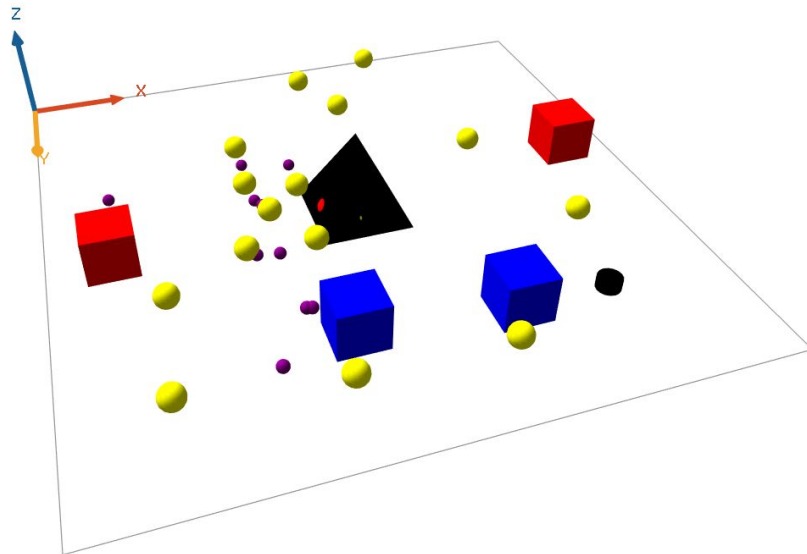


- The pink guest in the above image shows that it has acquired the location information of the store from one its neighbour guest only, while going to the Information center.
- The comparison graph between the distance travelled by the agent with or without the memory. It has been seen that with memory the distance travelled has been reduced to a great extent.

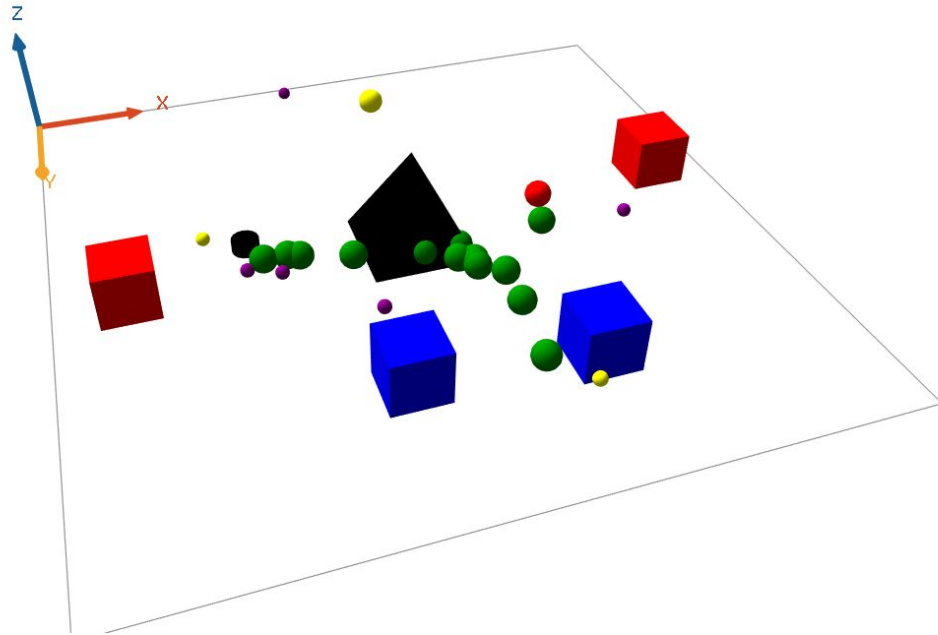


Challenge 2

- The purple ones are bad agents.



- The cylindrical-shaped security guard is chasing towards the bad agents.



- The security guard removed the bad agents.

