Eurockéennes simulation
VI51 project

Adrien BERTHET, Isaac CHIBOUB, Thibault MICLO and Camille MOUGIN

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Summary

1 Requirement Analysis

1.1 Authors of the project

This project's group is composed of four I2RV students : Adrien Berthet, Isaac Chiboub, Thibault Miclo and Camille Mougin.

1.2 Project's context

The Eurockéennes de Belfort is a large music festival happening in the beginning of July. It lasts three days and hosts a hundred thousand visitors each year. It takes place in the Malsaucy peninsula - just a few miles away from the city of Belfort.

Attendants can enjoy world-famous bands playing on four different stages. On-site stands are offering food, drinks, clothes and accessories. Obviously men and women bathrooms can also be found all over the festival. The entrance ticket includes an access to the camp site to sleep at night.

1.3 Goals of the project

The project globally consists in simulating people's actions during one day of festival. Our goals can be listed as follows.

- Model the site environment : stages, stands of different kind, bathrooms, trees, barriers, exit/entrance.
- Simulate crowd movements among stands and stages during the day, according to each people particular need.
- At a given moment, allow simulation user to drop a bomb inside the festival area. This event must lead to the evacuation of the site in a fast and efficient way.

1.4 Environment

The environment will be represented in 2D. The map is a simple area, filled with fixed entities and different kind of people. A single entrance/exit is present, with emergency exits all around the area.

Entities can be listed as follows :

Stages, where the bands play, and people gather around it
Obstacles, trees, barriers, etc...
Toilets, distinction between men's and women's

Food stands, where people go eat and drink
Shopping stands, where people can shop souvenirs
One entrance/exit + emergency exit, Where you can enter or leave the festival

FIGURE 1.1 – Entities representation

1.5 Agents and behaviors

1.5.1 Agents

We can define 3 types of agents :

Attendant, somebody who is here to attend concert
Vigil, someone who keep an eye on people. We can have regular vigils, and specialized vigils like medics, who help injured people
Shopkeepers, sell goods to attendants people

1.5.2 Behaviours

For each agent, we can specified differents behaviour :

Attendants each person has a list of concert he wants to see, he will try to go to each of them. Different schedules can be made :

- Regular schedule, one concert each hour, no conflict, the schedule will only be interrupted by natural needs (food, toilets, drink)
- Groupie schedule, one group in particular, skip the previous concert to be in the first row, then regular schedule
- Conflicted schedule : some concerts are in conflict, so the person will see x% of the first one and 100-x% of the second one

Outside of schedules, people can act differently :

- Regular people, drink a bit, eat a bit, use the restrooms, go to concerts from the beginning to the end
- Drugged people, slow motion, can slow the evacuation process
- Angry people, various reasons (alcohol, pogos, fights), can hurt others people. People hurted should be evacuated by vigils as soon as seen
- A few, randomly selected can be heavy drinkers and start to act totally randomly (should be stopped by vigils as soon as seen by one)
- Idiot people, take the evacuation as an opportunity to be on the front row

Vigils As presented above, there is two types of vigils :

- Regular vigils : stay at the same place all the day, have a sight of seeing to detect drunk people and angry people, maybe rotation of given people at given posts
  Passive stationed near his post (stage supervisory, entry body check)
  Active motion until in range of troublemakers then warning or neutralization, back to original post after operation success
- Medics : same as vigils but for injured people

Shopkeepers sells goods to people, stay behind the stand the all night and evacuate when needed

Apart from those specific behaviors for each type of agent, there is also a panic behavior, which is triggered by the user (events defined below).

— Augmentation of maximal speed
— Reduction of perception field
— Following crowd direction until perception of emergency exit

1.6 Tools

The application will be written in Java, in a Maven project. For the interface, it will be in 2D (aerian view), using Swing. To manage the multi-agent aspect of the project, Janus 1.0 will be used.

2
Design part

3
User guide

Conclusion