The building

- Receives registrations from agents which manage rooms in the building.
- Receives registrations about agents which represent devices and about agents which offer services.
- Receives queries about which agents offering types of services.
- Responds to said queries (directly to the original agents making the query) with data from its knowledge base or with answers saying that there is no information regarding that query.
- The GUI lists the KB.

Room1

- Periodically registers with the building.
- Receive registrations from users who are in the room.
- Receive registrations from devices which are in the room. These registrations are forwarded to the building.
- Receives queries about which agents are in the room and answers these queries.
- Receive queries about devices or services which are forwarded to the building, if the room cannot answer them.
- The GUI lists the users and devices in the room.

Room2

- Periodically registers with the building.
- Receive registrations from users who are in the room.
- Receive registrations from devices which are in the room. These registrations are forwarded to the building.
- Receives queries about which agents are in the room and answers these queries.
- Receive queries about devices or services which are forwarded to the building, if the room cannot answer them.
- The GUI lists the users and devices in the room.

Location Service

- Periodically registers with the building.
- Can be asked by an agent to move locally to a container.
- After doing so, it will periodically find out (by querying the building and the rooms) in which room the container is located.
- Receives queries about its current location and answers them.
- The GUI prints the location.

Navigation Service

- Periodically registers with the building.
- Can be asked by an agent to move locally to a container. The message will also contain the name of a Location agent.
- The GUI offers a text field in which the user can write the name of a room, and a button.
    - When the button is pressed, the agent asks the Location agent for the current location,
    - The GUI will print directions on how to get from the current location to the room entered by the user.

Display

- Periodically registers with Room1.
- Receives a request from an agent to print a string in the GUI.

Projector

- Periodically registers with Room2.
- Receives requests from an agent to print a string in the GUI.

Printer

- Periodically registers with Room2.
- Receives requests from agents for strings to print.
- The GUI shows all strings that have been requested for printing.
- A button in the GUI clears the print history.

Course-A

- Periodically registers with Room1.
- Receives registrations from users who are part of the course.
- The GUI prints the user list.
- The GUI has a text field and a button.
  - When the button is pressed, the agent queries the room for a projector.
  - When a projector is found, it asks the projector to show the string in the text field.

Course-B

- Receives registrations from users who are part of the course.
- Periodically registers with its current room.
- Its initial room is Room1.
- The GUI prints the user list.
- The GUI has a button "assign to Room2".
  - When the button is pressed, the course changes its currently assigned room (registers with Room2).
  - When this happens, it notifies all users of the change.

USER_DISP – a user that needs a display

- Periodically registers with its current room.
- Its initial room is Room1.
- The GUI has two buttons and a text field.
  - When button "Show on display" is pressed, the agent queries its current room for a display.
  - When the name of an agent which can display is received, it sends to it the string in the text field.
  - When button "Move to other room" is pressed, it registers with the other room.
- Periodically registers with Course-B.

USER_PRINT – a user that needs a printer

- Periodically registers with its current room.
- Its initial room is Room1.
- The GUI has two buttons and a text field.
  - When button "Send to printer" is pressed, the agent queries its current room for a printer.
  - When the name of an agent which can print is received, it sends to it the string in the text field.
  - When button "Move to other room" is pressed, it registers with the other room.
- Periodically registers with Course-A.

USER_NAV – a user that needs navigation

- Periodically registers with Room2.
- The GUI has a text field and two buttons.
  - When the "Location" button is pressed, the agent queries its current room for a location service.
  - When the name of an agent offering location services is received, this agent asks it to come to the current container.
  - When the "Navigate" button is pressed, the agent queries its current room for a navigation service.
  - When the name of an agent offering navigation services is received, this agent asks it to come to the current container and also includes the name of the Location agent in the message.
  - After some time, it asks the Navigation agent how it can get to the room in the text field, and prints the result in the GUI.
- Periodically registers with Course-B.

USER_COURSE – a user that is part of Course-A

- Periodically registers with Course-A.