# Smart Office

Group 12

User Documentation

Preface

Unity 3D is used for the purposes of visualizing our Smart Office System in an interactive manner. By typing in a cubicle location (e.g. 002) into the box shown below in the Unity GUI, we can visualize the movement of the robot, including its collision avoidance, obstacle detection, and shortest-path finding capabilities.

On the bottom right side of the interface, there is a section labeled **Movement (script).** The number of cubicles in the office can be customized by typing the desired number of cubicles into the **Size** field in the EmpPoints section.
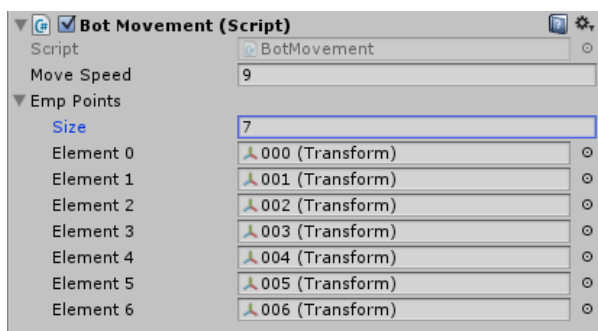
Once the number of cubicles has been specified, the 3D positions of the cubicles can be stored by dragging and dropping the points in the Hierarchy tab on the left into the array elements.

If additional points need to be created, CTRL+SHIFT+N will create a new Empty GameObject, which can be placed anywhere in the virtual office.

Mail Request

When an employee uses the desktop application to request mail to be delivered to them from the mailroom, the

is a game development software that is freely available for download. It is used in our project to simulate the functions of our Smart Office System. In a real-world implementation, we would not only use this software to demonstrate what our robot can do in an office environment, but we would also incorporate the virtual robot's pathfinding and mapping abilities into SLAM (Simultaneous Localization and Mapping), which is used in real-world robot navigation. The task delegation and queuing functions are also transferrable to a real-world robot.

request is fulfilled in Unity by the movement of the robot to the mailroom (location 000) and then to the cubicle of the requester. In a real-world scenario, the robot would have its compartments filled with mail by a worker in the mailroom. Once its mail compartment is closed, magnetic or light sensors would cue the robot to move to its destination.

Delivery Request

When an employee uses the desktop application to request mail or packages to be delivered another employee within the office, the request is fulfilled in Unity by the movement of the robot to the cubicle of the requester, then to the cubicle of the recipient. In a real-world scenario, the robot would have its compartments filled by the requester once it reaches his or her cubicle. Once its mail compartment is closed, magnetic or light sensors would cue the robot to move to the cubicle of the recipient.

Coffee Delivery

When an employee uses the desktop application to request coffee, the request is fulfilled in Unity by the movement of the robot to the cubicle of the requester. In a real-world scenario, the requester would make coffee to his or her tastes using the robot's built-in coffee machine. Once its coffee compartment is closed, magnetic or light sensors would cue the robot to move to the complete its next task.
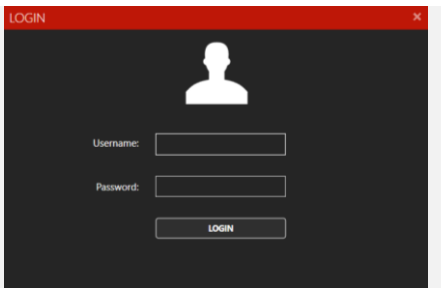
Table of Contents

General Use

To login

1. Enter username and password.
2. Click **LOGIN**.

To order mail from mailroom

1. Click **NOTIFICATIONS** in the menu on the left.

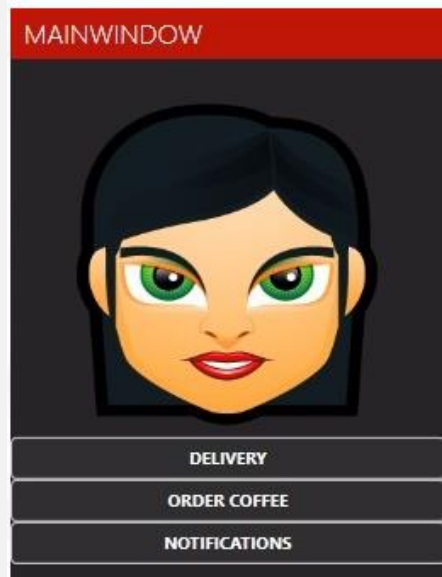2. Click **FETCH MAIL** next to the mail you would like to order from the mailroom.

3. You will be notified that your mail is on its way. Click **OK**.

Notification
A robot will deliver you your mail soon!
OK
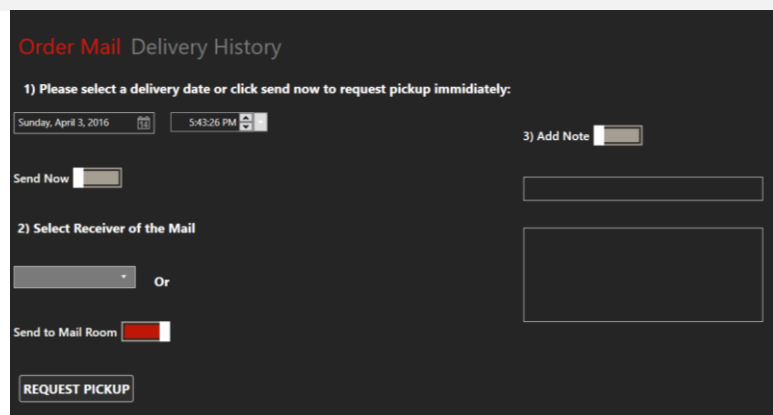
To order mail to be delivered to the mailroom

1. Click **DELIVERY** in the menu on the left.

MAINWINDOW
DELIVERY
ORDER COFFEE
NOTIFICATIONS

2. Enter the delivery time and a note if needed.
3. Make sure to flip the switch **Send to Mail Room** on.
4. Click **REQUEST PICKUP**.

Order Mail Delivery History
1) Please select a delivery date or click send now to request pickup immidiately:
Sunday, April 3, 2016   5:43:26 PM
3) Add Note
Send Now
2) Select Receiver of the Mail
Or
Send to Mail Room
REQUEST PICKUP

5. You will be notified that your mail will be picked up soon. Click **OK**.

Notification
A robot will arrive for pickup soon!
OK

To order mail to be delivered to another user

1. Click **DELIVERY** in the menu on the left.

2. Enter the delivery time and a note if needed.
3. Select the receiver from the dropdown menu.
4. Click **REQUEST PICKUP**.

5. You will be notified that your mail will be picked up soon. Click **OK**.

To view your delivery history

1. Click **DELIVERY** in the menu on the left.

2. Click the **Delivery History** tab.

To order coffee

1. Click **ORDER COFFEE** in the menu on the left.

2. You will be notified that your coffee is on its way. Click **OK**.

To view your notifications

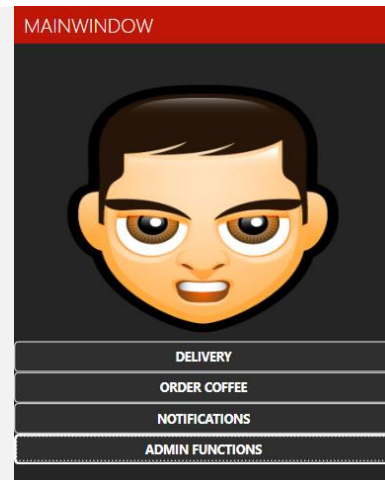1. Click **NOTIFICATIONS** in the menu on the left.

2. A list of your notifications will be displayed.

For Admins

To view a robot's battery status

1. Click **ADMIN FUNCTIONS** in the menu on the left.

MAINWINDOW

DELIVERY
ORDER COFFEE
NOTIFICATIONS
ADMIN FUNCTIONS

2. The robot battery statuses will be shown.

Robot Status Available Employees
Robot Status

Robot 1
Power Availability: 71%
Remaining Time: 124.25 min
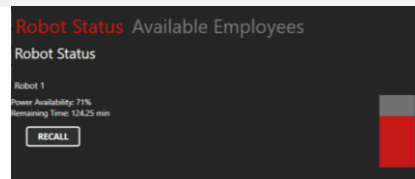
RECALL

To recall a robot back to its charging station

1. Click **ADMIN FUNCTIONS** in the menu on the left.

MAINWINDOW

DELIVERY
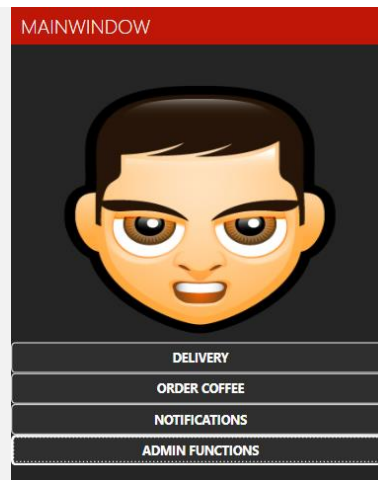ORDER COFFEE
NOTIFICATIONS
ADMIN FUNCTIONS
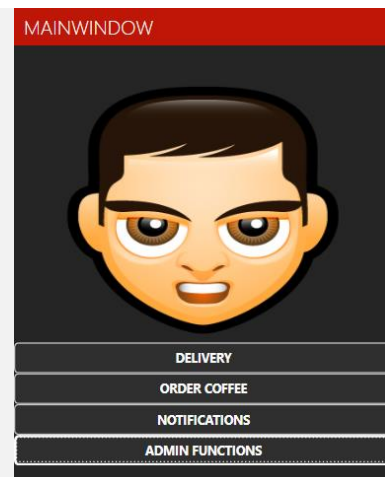
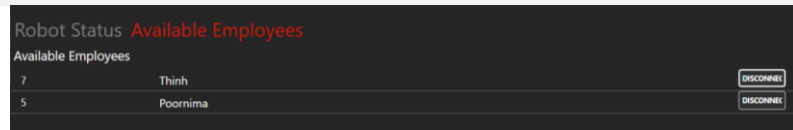2. Click **RECALL** under the robot you would like to recall.
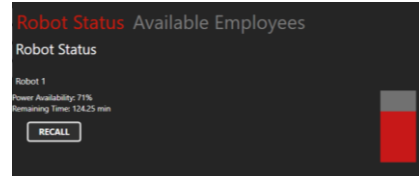
To view the available employees

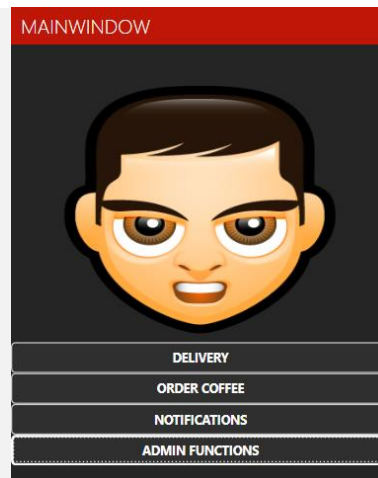1. Click **ADMIN FUNCTIONS** in the menu on the left.

2. Click the **Available Employees** tab.

To disconnect a connected user

1. Click **ADMIN FUNCTIONS** in the menu on the left.

2. Click the **Available Employees** tab.
3. Click **DISCONNECT** next to the user you would like to disconnect.

Robot Status Available Employees

Available Employees

| 7 | Thinh | DISCONNECT |
| 5 | Poornima | DISCONNECT |