

SmartOffice

MAKING OFFICES GREAT AGAIN....

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[HTTPS://PROJECTSMARTOFFICE.WORDPRESS.COM/](https://PROJECTSMARTOFFICE.WORDPRESS.COM/)

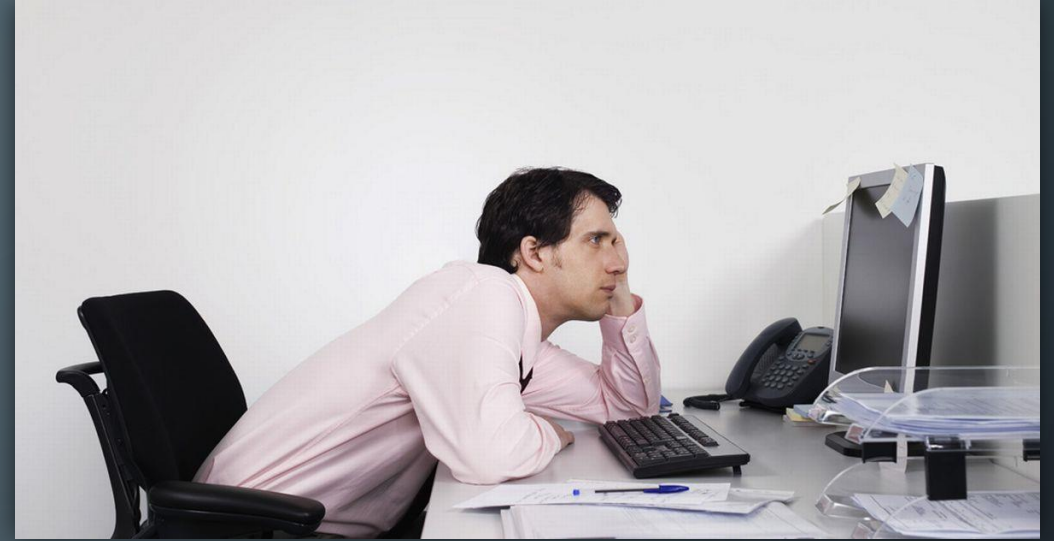
SMARTOFFICE



OFFICE ENVIRONMENTS

- Inefficiency of many offices can be attributed to lack of modern systems for everyday tasks
- External mail needs to be picked up from mailroom
- Documents that need to be signed by other employees need to be carried to them
- Proximity to coffee (a necessity) varies
- Everyone is tired and stressed

SMARTOFFICE



PROBLEM STATEMENT

- Time is wasted in a number of ways:
 - Getting packages from mailroom
 - Taking documents to other employees
 - Getting coffee from breakroom or coffee shop
- These tasks put employees at risk of getting distracted by other people and things in the office, reducing productivity levels

OUR SOLUTION

- Introducing the SmartOffice!
- Our robots provide state-of-the-art delivery service
 - External incoming/outgoing mail
 - Internal delivery
 - Coffee delivery
- Easy-to-use desktop application for making requests
- Increases productivity levels by removing mundane time consuming tasks



FEATURES

- Request delivery of incoming external mail from the mailroom
 - Robot will collect mail from mailroom and bring to your desk
- Request delivery of internal mail to other employees
 - Robot will collect mail from your desk and bring to recipient's desk
- Request delivery of coffee
 - Robot will arrive at your desk and open its coffee compartment

DELIVERY

ORDER COFFEE

NOTIFICATIONS

ADMIN FUNCTIONS

DESKTOP APPLICATION

- Interface for users and admin to interact with the system
- Delivery
 - Coffee
 - Mail
 - From mailroom
 - To another employee
 - To mailroom
- Notifications

The screenshot shows the 'MAINWINDOW' of the SMARTOFFICE application. It features a dark theme with a red title bar. On the left, there is a sidebar with a user avatar and a menu containing 'DELIVERY', 'ORDER COFFEE', 'NOTIFICATIONS', and 'ADMIN FUNCTIONS'. The main content area displays a welcome message 'Welcome, Thinh Nguyen!' and a section for 'Order Mail' and 'Delivery History'. It includes a date and time selector (Friday, April 1, 2016, 12:24:10 AM), a 'Send Now' button, and a 'REQUEST PICKUP' button. There are also input fields for 'Add Note' and 'Select Receiver of the Mail'.

MAINWINDOW

Welcome, Thinh Nguyen!

Order Mail Delivery History

1) Please select a delivery date or click send now to request pickup immediately:

Friday, April 1, 2016 12:24:10 AM

3) Add Note

Send Now

2) Select Receiver of the Mail

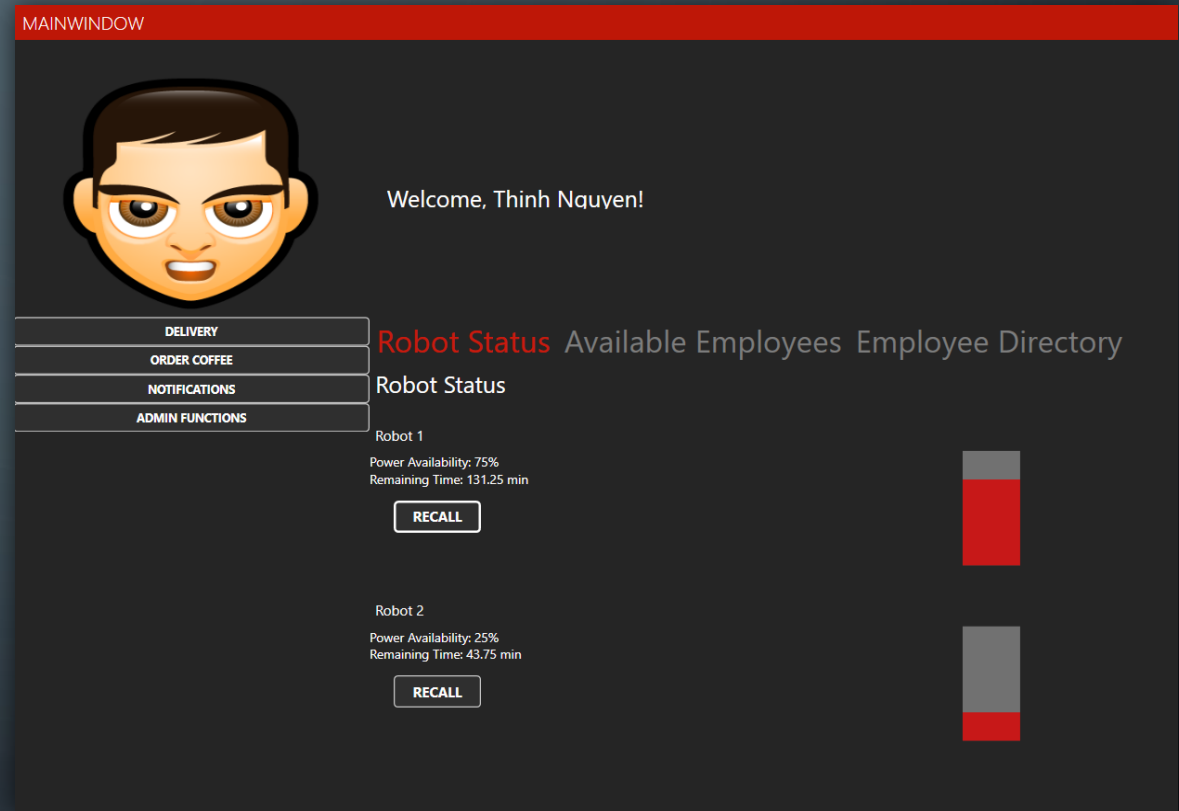
Or

Send to Mail Room

REQUEST PICKUP

DESKTOP APPLICATION – ADMIN FUNCTIONS

- View robot battery status
 - Recall robot(s) to charging station
- View available (logged in) users
 - Disconnect users
- View employee directory
 - View/edit user details
 - Add/remove users



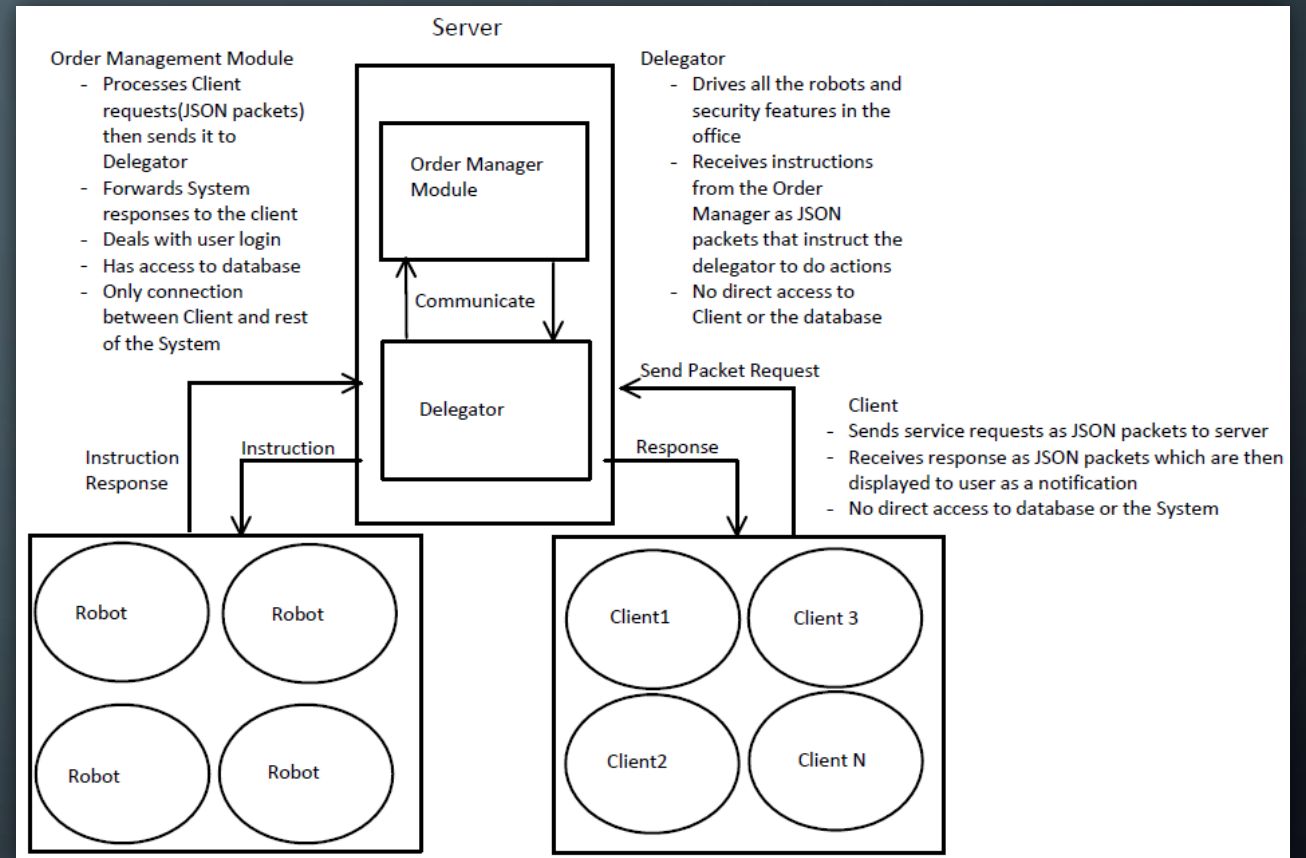
UNITY CLIENT/ROBOT

- Integration with Unity helps simulate all of the tasks our robot can perform.
- The Unity simulation shows what would be done in a real-world implementation of our system:



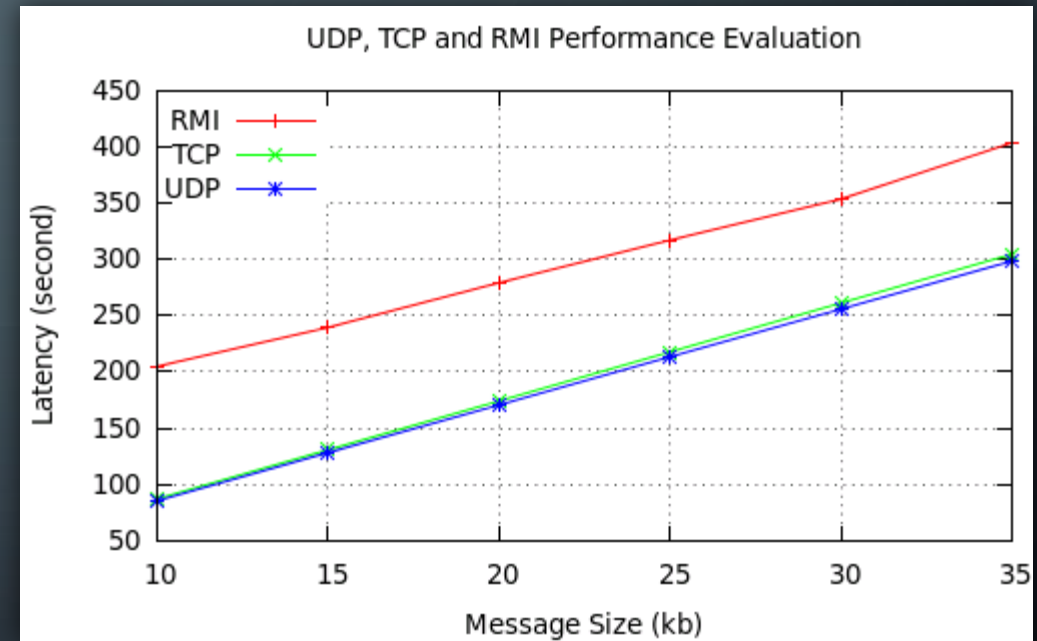
SERVER

- TCP Server Sockets
- Connects application to robot
- Requests sent via JSON packets

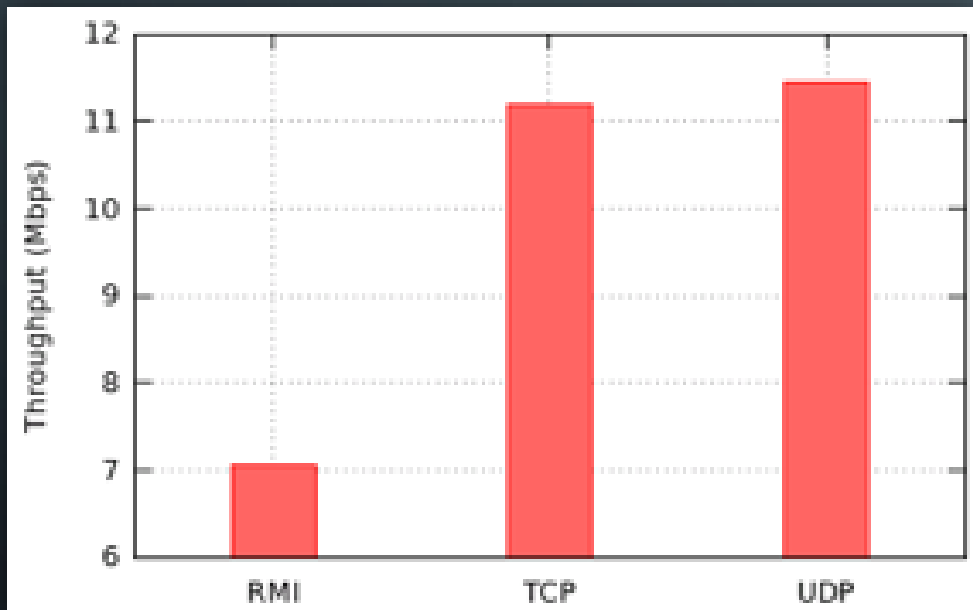


JAVA RMI VS. TCP SERVER SOCKETS

- Previous group used Java RMI
- TCP Server sockets is faster and has greater throughput



THROUGHPUT ANALYSIS



- We also shows the throughput comparison between the 3 protocols. We calculate throughput by dividing total received packet size by duration.
- Because RMI takes longer to complete, the throughput is also lower compare to TCP and UDP.

FUTURE UPDATES

- Office Security Features

- Integrate facial recognition with robots to protect office against intruders
- Log guest arrivals and departures
 - Take picture for facial recognition upon arrival
 - Automatic departure log using facial recognition

- Admin functions

- Override robot tasks
- Update floorplan of office

- General

- Mute notifications
- “away from desk” status

WHY TO BUY

- For only a little over \$1000:
 - Increased productivity
 - Improved office technology
 - Central system for security and delivery purposes
 - New level of sophistication for company



CLOSING REMARKS

- Our SmartOffice will optimize office environments by increasing productivity
 - Limit wasted time by reducing everyday tasks to a few clicks
- Great growth potential for optimization of other aspects of the office
 - FUTURE security features
- For more information, visit <https://projectsmartoffice.wordpress.com/>.

THANK YOU

