1

Robotics

- **Week10 ~ Week 11 진행상황**

Sort tracking for strolling assistant

Portforwarding & connection with server
-> discussed on Backends section…

Minor changes – Navigation parameters change, emergency detection, robot design…

Sort tracking

What is sort tracking?

Purpose : To identify who is the user between humans

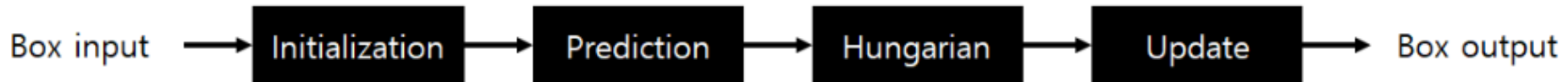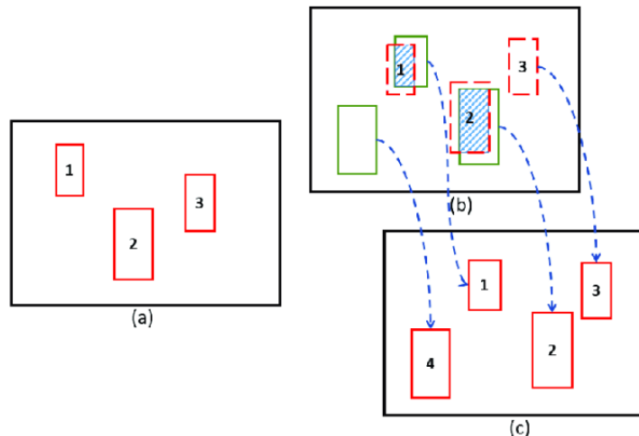Method : Get bounding box from yolo and indexing them.

- **Sort tracking**

Sort Tracking Algorithm

Box input → Initialization → Prediction → Hungarian → Update → Box output

Prediction : Predict the expected bbox location based on current status of bbox

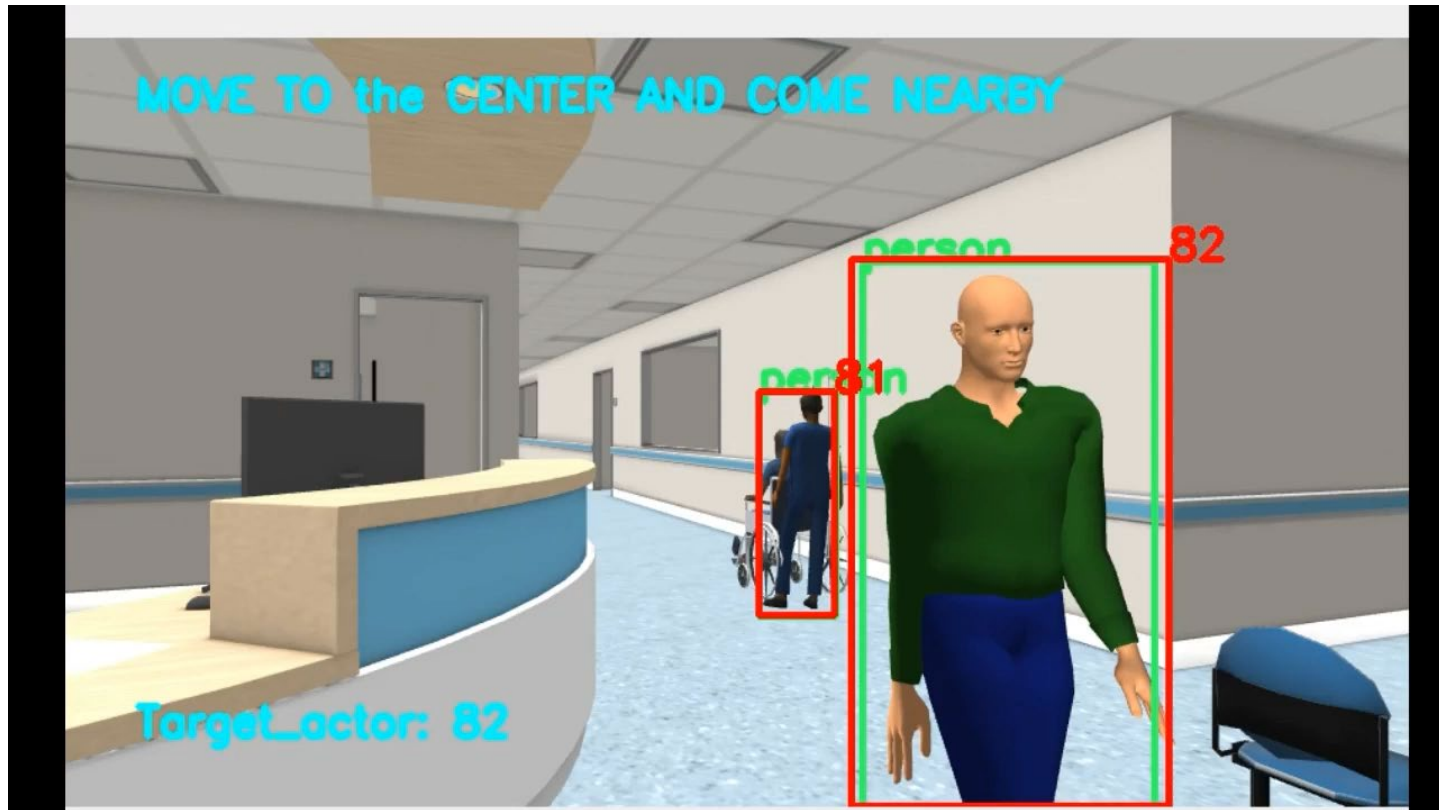Hungarian Algorithm : Match prediction with real values

Figures from…
https://mickael-k.tistory.com/48

● **Sort tracking**

Sort tracking structure

YOLOv3

Bounding box
coordinates

Depth
yolo
node

Detection with
labels

Bounding box with
depth data
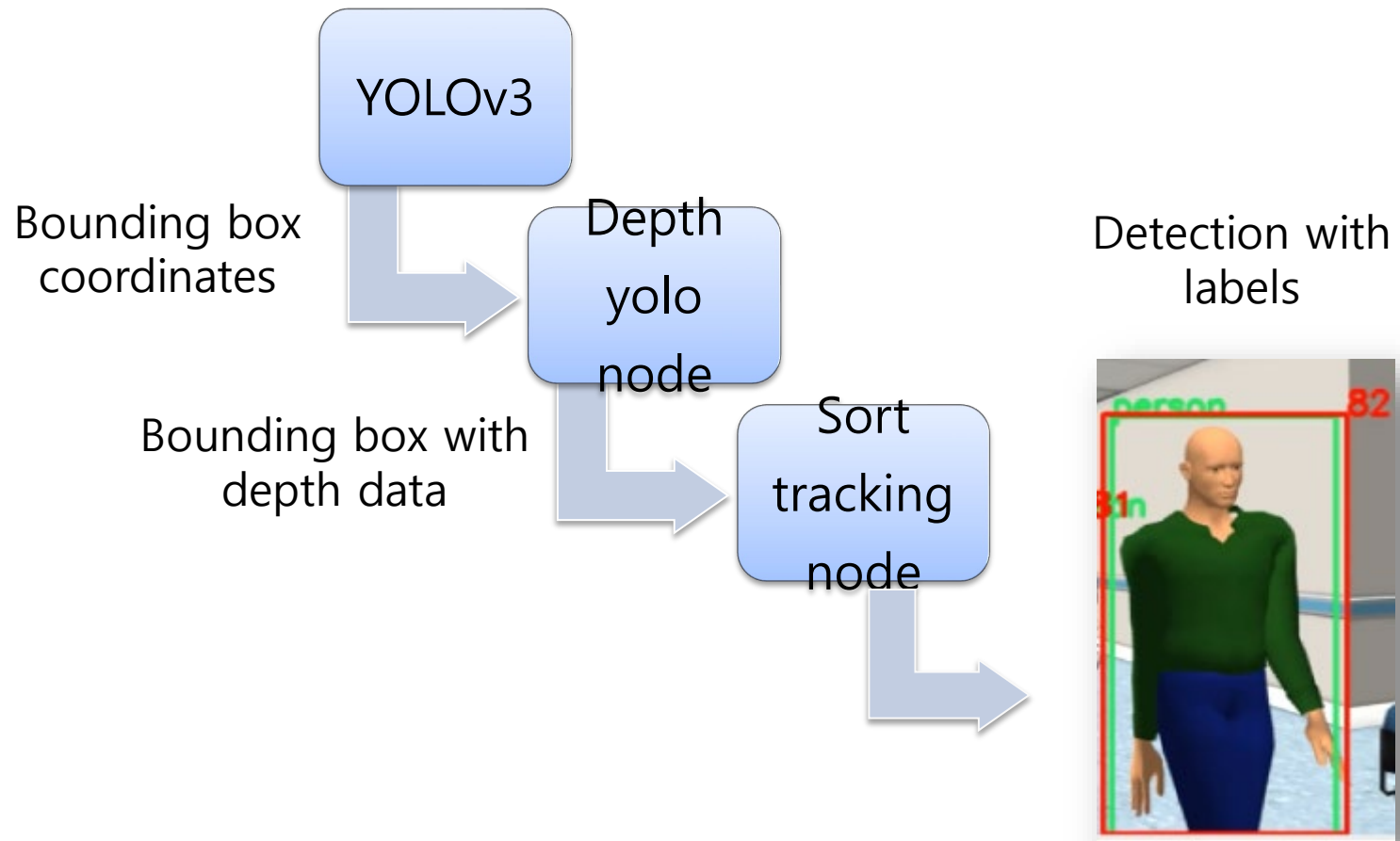
Sort
tracking
node

Sort tracking

Short demo

"Target_actor" keep change as there are multiple people
Set robot to target **nearest person** if it lost the target
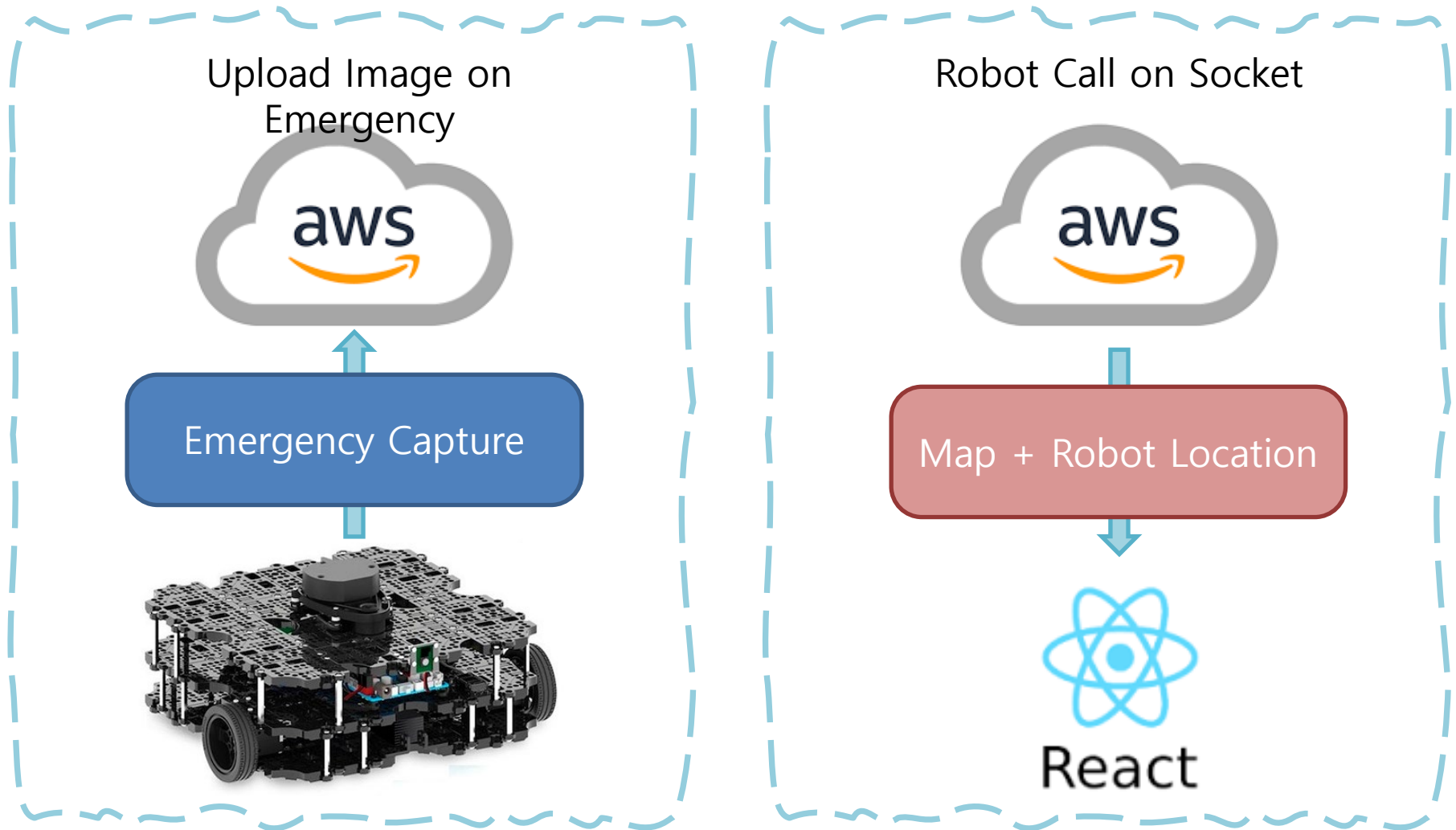-> not 100% accurate

- **Future Work**

Somewhat inaccurate to use in demo -> keep making heuristic approach

Working with backends, connecting server and robots

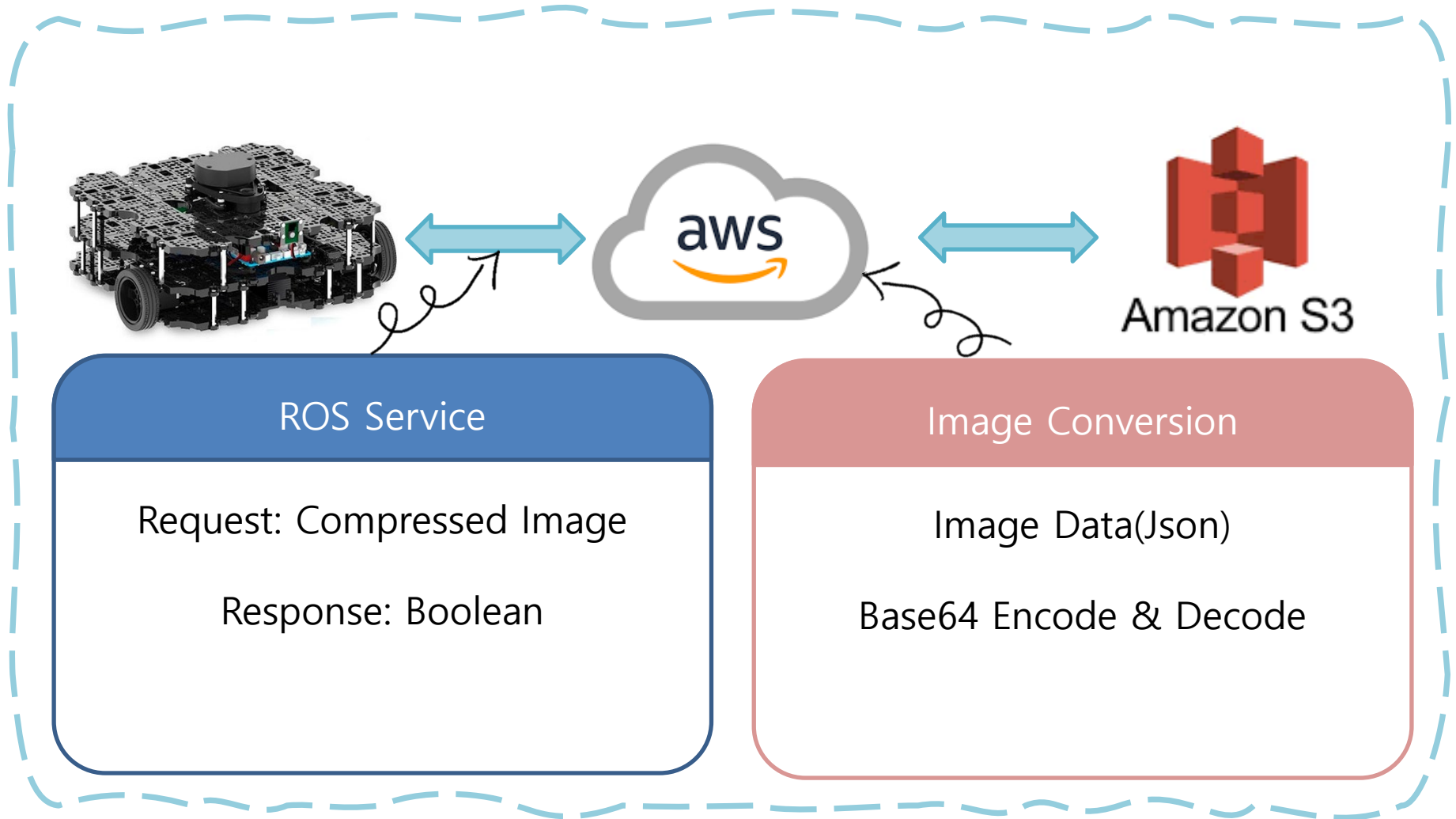Make scenarios of the demo videos of final presentations.

● Progress

Upload Image on
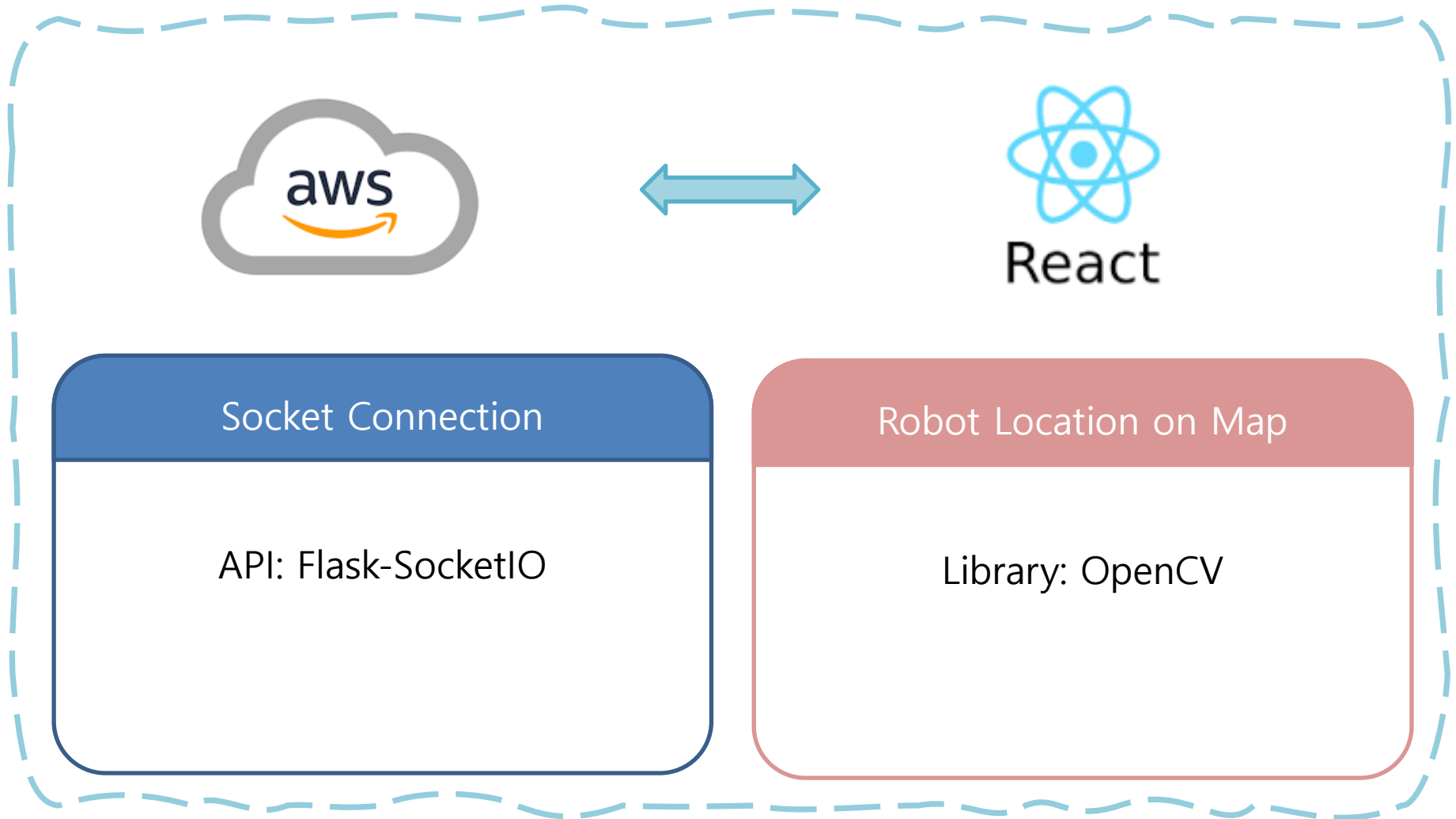Emergency

Emergency Capture

Robot Call on Socket

Map + Robot Location

React

Emergency Capture

ROS Service

Request: Compressed Image

Response: Boolean

Image Conversion

Image Data(Json)

Base64 Encode & Decode

- Robot Call on Socket

Socket Connection

API: Flask-SocketIO

Robot Location on Map

Library: OpenCV

- Future Plans
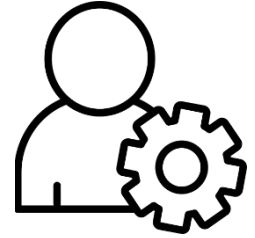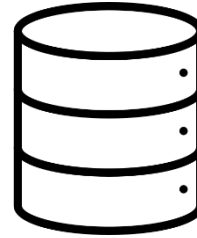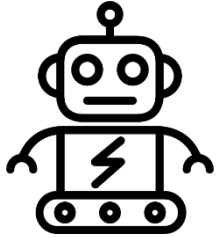
Robot Call Optimization

- Communicate with robot using Service

Connection with Admin

- Update emergency image on Database
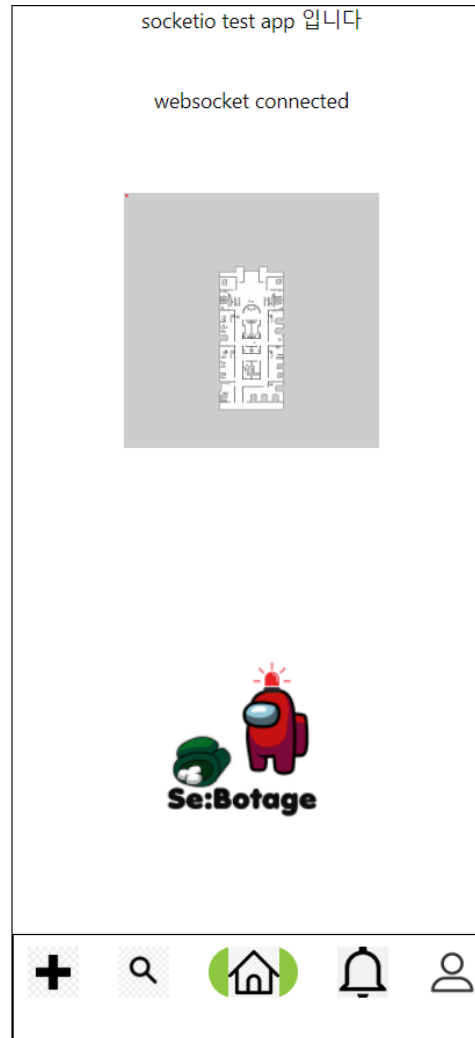
- Connect with Admin Front-end

Map Image on S3

- Load map image from storage for scalability

Connect
websocket API

Divide
user/admin app

- proxy

Connect
Through Proxy

Flask
Port 5000

NodeJs
Port 3000
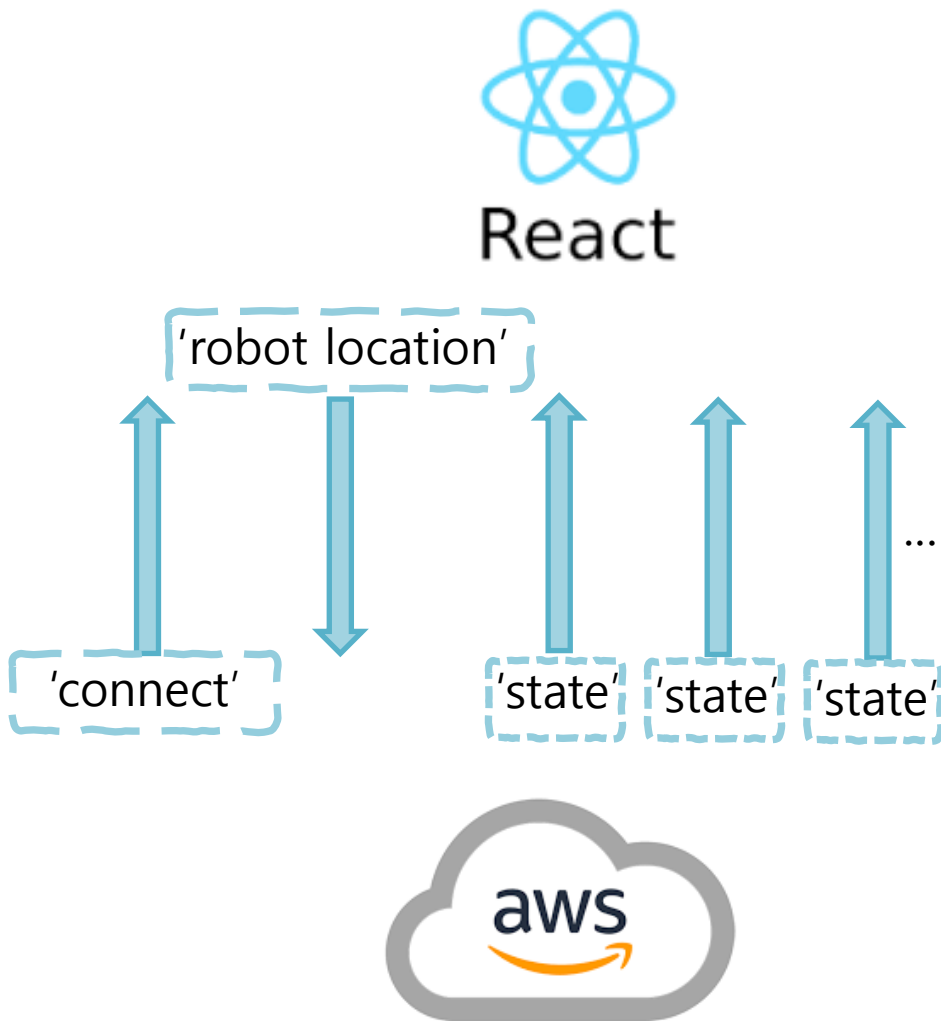
- websocket api

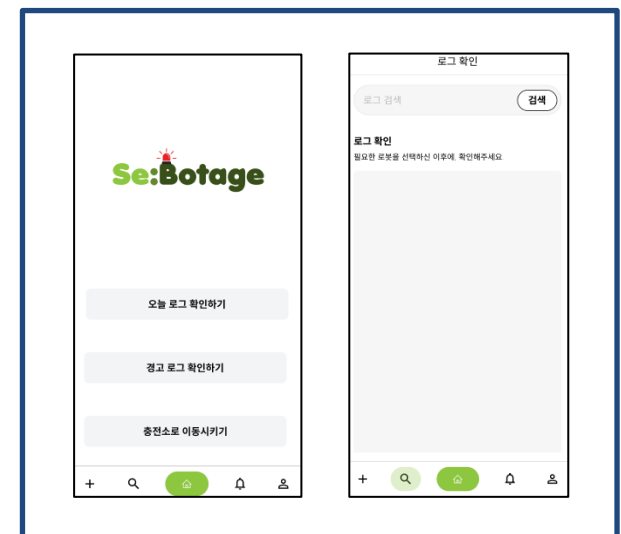## User and Admin

Session

USER PAGE
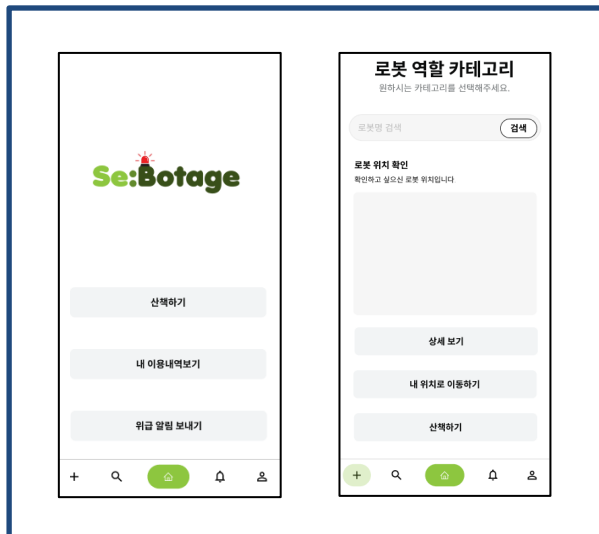
ADMIN PAGE

● User and Admin

USER PAGE

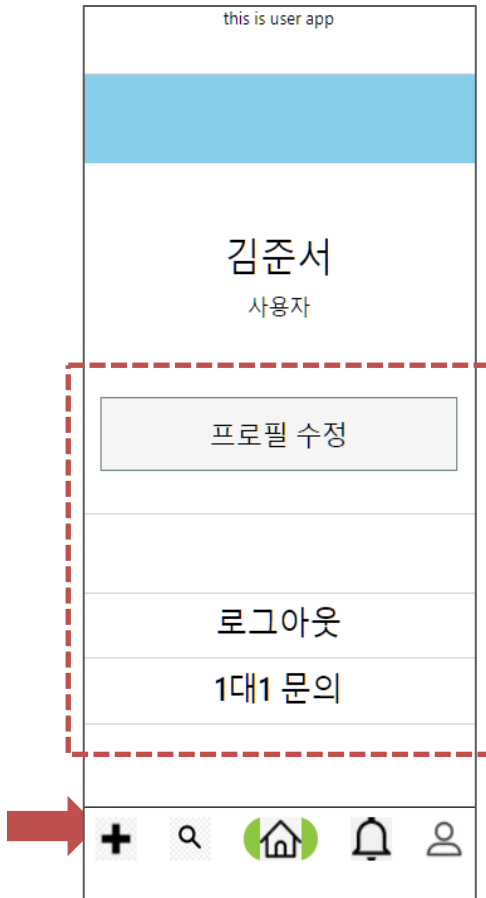ADMIN PAGE
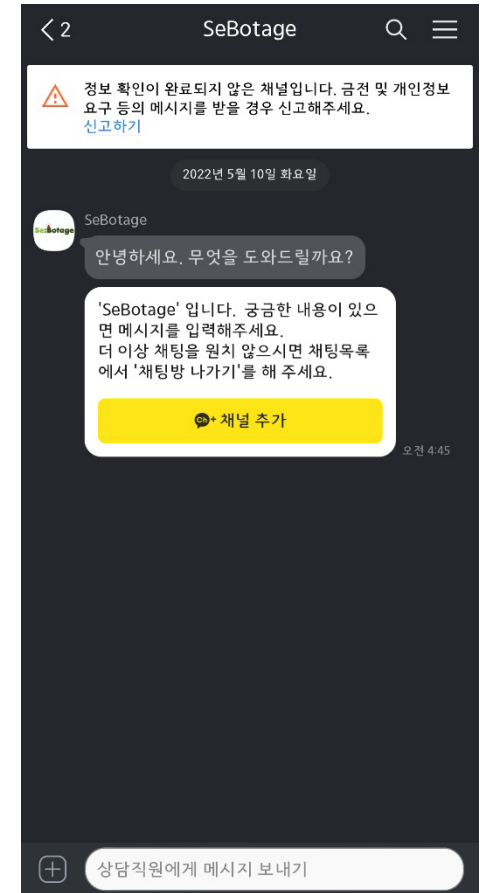
● Button for Function

버튼을 누르면, 기능 작동

로그인
로그아웃
프로필 수정 기능 삽입

Front-End

- Future task

websocket into object → use single socket for entire app

fill out other page with data from websocket
- stroll assistance
- view robot log

alert for emergency detection in admin app

THANK YOU