

# ***KNOW THE CROWD!***

***APP THAT PROVIDES LIVE INFORMATION OF SEATS AVAILABILITY ON A PUBLIC TRANSPORT***



# PROBLEM STATEMENT

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*In this pandemic situation, people fear to avail public transport due to lack of real time crowd strength information, resulting in over-crowded or empty transports.*



# SOLUTION

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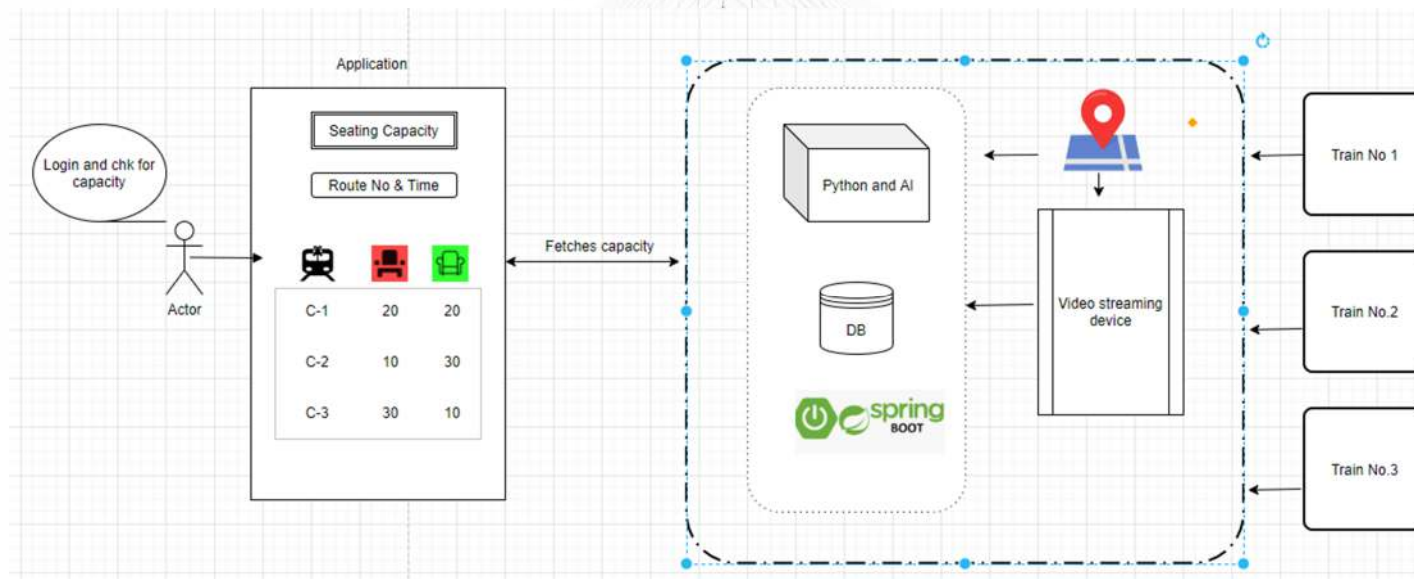
- *A system that provides real-time information on crowd strength inside a vehicle which allows the user to decide whether or not to avail public transport.*
- *This information would enable User to look for alternatives rather than over crowding the place, thereby effectively reducing the community spread of covid.*

*We have considered Bangalore Metro as a sample*

# OVERVIEW

Provides real time stats on number of seats available in a Train

ARCHITECTURE PRESENTATION



# SOLUTION DESIGN

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## **Front-End:** --Spring boot, jsp

*Developed on Spring boot, the UI fetches the number of Free seats available in a train or coach. A user interested to avail public transport(Metro) can choose the route and boarding Station and the results are rendered to the user through JSP pages.*

## **Back-End:** --Computer vision, python, AI, OpenCV

*The Live people tracking service provides information on Seat availability inside a coach to the UI.*

*Camera installed in metro coach streams the video to the python service, and the service computes the current occupancy in the coach using OpenCv and Mobilenet libraries. The no. of people inside a coach is computed by netting the no. of people entering and exiting the coach. The counter will then compute the Free seats information based on the total capacity of the coach. The occupancy data gets refreshed whenever it detects the movement of people in a stop/station.*

# IMPLEMENTATION

## Complete:

1. Metro App GUI
2. Live people tracking Service to display the count of number of people in a coach.
3. Hosted the Live people tracking service on IBM cloud-Docker, Kubernetes.

*Our current solution fetches Metro details and Free seats availability from H2 Database. But, once the Live people tracking is implemented, the stats will be real-time.*

## In-progress...

*Integration of MetroApp UI with the Live people tracking service that provides information on Free seats to the UI.*

Metro Home			
Live Seats Viewer			
Following Trains are Approaching....			
Route	Coach	Capacity	Free Seats
Baiyappanahalli-Mysore Road	C-1	100	50
Baiyappanahalli-Mysore Road	C-2	100	63
Baiyappanahalli-Mysore Road	C-3	100	55





## Using Computer Vision

- *Live tracking*
- *Decision making*
- *Accurate outcome*
- *Cost reduction*



# TECHNOLOGICAL EASE

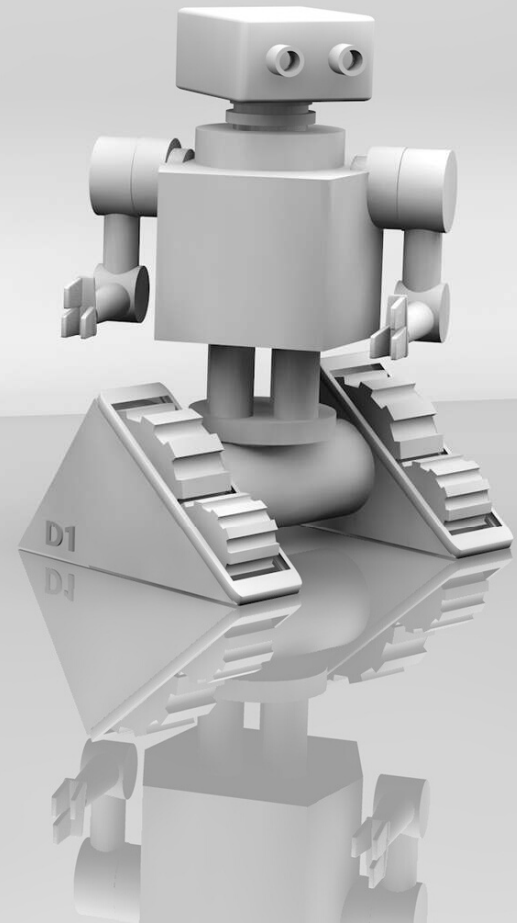
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## Advantages of Docker

- Lightweight, provides multi-cloud platform support
- Distribute and share content
- Eliminate environment dependencies
- Ship software faster
- Remediate issues efficiently
- Ease of maintenance

## Docker Key UseCases

- Modernize
- Traditional Apps
- DevOps (CI/CD)
- HybridCloud
- Microservices
- Infrastructure, Optimization, Big Data





# ADVANTAGES

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- *Encourages people to avail public transport*
- *Risk of getting affected in pandemic is less*
- *Helps to plan for alternatives based on time constraint*
- *Reduced cost, time and energy*
- *Eco-friendly*



# ROAD MAP

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## ► IMPLEMENT ON A BROADER SCALE

Malls, Cafeterias etc..

## ► SMART SUGGESTIONS

Provide alternate commute options if current place/transport is crowded

## ► SENSOR

Integrate sensor that alarms on detecting people to maintain social distancing.

# APP USAGE

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- Public Transport
- Malls
- Food Courts
- Metro Stations
- Restaurants
- Gyms
- Parks



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