



# OVERHEAD VISION SYSTEM FOR ENHANCED BUS PASSENGER COUNTER

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# RATIONALE



## PUV Modernization Program 2017-2020

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### Main objectives

- Comprehensive transportation system reform
- New guidelines for the issuance of franchise
- Proper fleet management
- Integration of technology



# RATIONALE



Efficient



Eco Friendly



Safe



# RATIONALE



## Local Public Transport Route Plan

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### Guidelines

*(Local Public Transport Route Plan Manuel Volume 1)*

- Easy to understand and responsive.
- Providing public transportation in underserved areas
- Rationalizing areas where there is an oversupply of public transportation modes



# PROBLEM



## Route Planning

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### Challenges

- Highly technical process
- Needs to be modeled to one's locality
- Complex transport planning tools



# INFORMATION AND COMMUNICATION TECHNOLOGY



# SOLUTION



**STARPLAN**

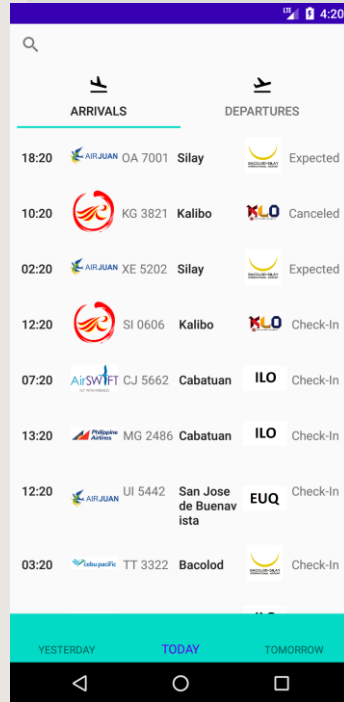
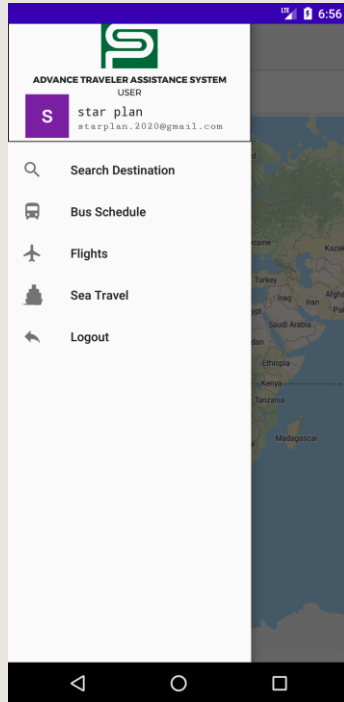
## Advanced Traveler Assistance System (ATLAS)

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- ATLAS is a series of applications for users, bus drivers and operators which aims to provide useful information relating to different modes of transportation and traffic management



# ATLAS - USER



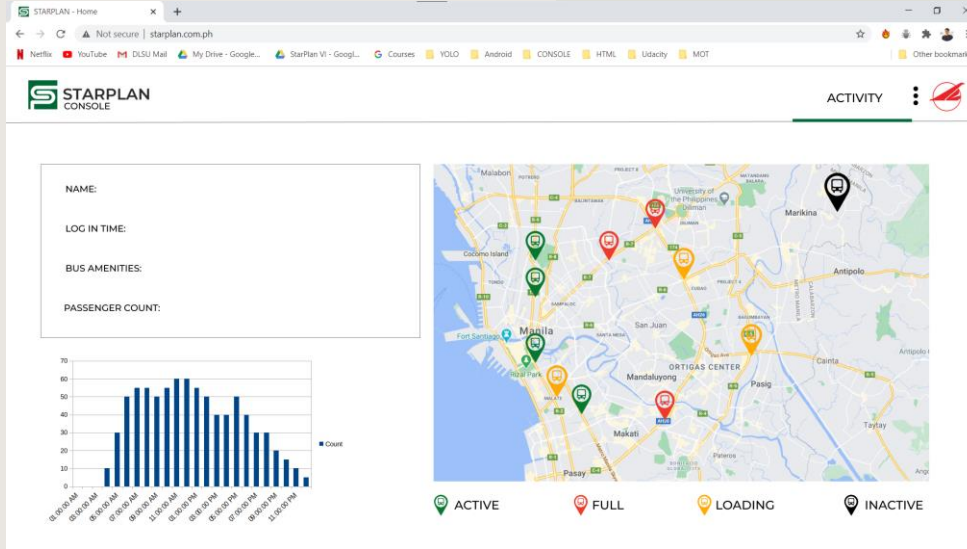
## Designed for Travelers or Commuters

- An android application providing consumers access to flight and ferry schedules as well bus information

PROTOTYPE



# ATLAS - OPERATOR

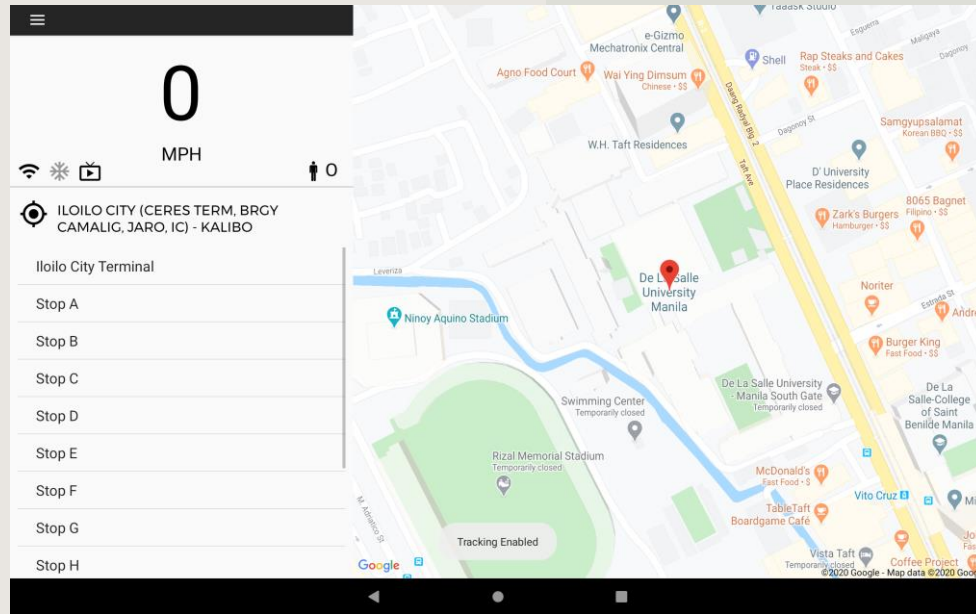


PROTOTYPE

## Designed for Bus Operators

- A web-based application providing bus operators and/or company owners a console with access to data analytics and asset tracking

# ATLAS - DRIVER



PROTOTYPE

## Designed for Bus Drivers

- Integrated tools and technologies in one device providing the driver the necessary tools for a more efficient travel.

# ENHANCED BUS PASSENGER COUNTER



## Automated Passenger Counter

- Powered by Computer Vision and Machine Learning Technology
- Accurately count boarding and alighting passengers inside the bus.
- Takes advantage of the integrated GPS technology and internet connectivity to provide real-time count and location

Footage from open source dataset

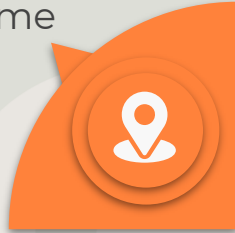
<https://github.com/shijieS/people-counting-dataset>



# OTHER FEATURES

## Real-time Bus Tracking

Track assets and estimate time of arrival per bus stop



## Driver Time Log

Monitor employee work hours



## Digital Speedometer

Set speed alarms for safety and awareness



## Accessible Video Cameras

Access video surveillance cameras for additional security



# BENEFITS



Efficiently  
dispatch assets



Cross-check  
Ticket Sales



Analyze performance  
indicators



User-friendly  
Interface



# PASSENGER COUNT



Efficiently  
dispatch assets



Cross-check  
Ticket Sales

## Bus Scheduling and Ticket Cross-checking

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- Analyze and determine passenger travel patterns to generate optimal bus scheduling.
- Cross check ticket sales



# ROUTE ANALYTICS



Analyze performance  
indicators

## Performance Metrics

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- Analyze key performance indicators
- Generate hot locations



# USER-FRIENDLY INTERFACE



User Friendly  
Interface

## Bus Scheduling

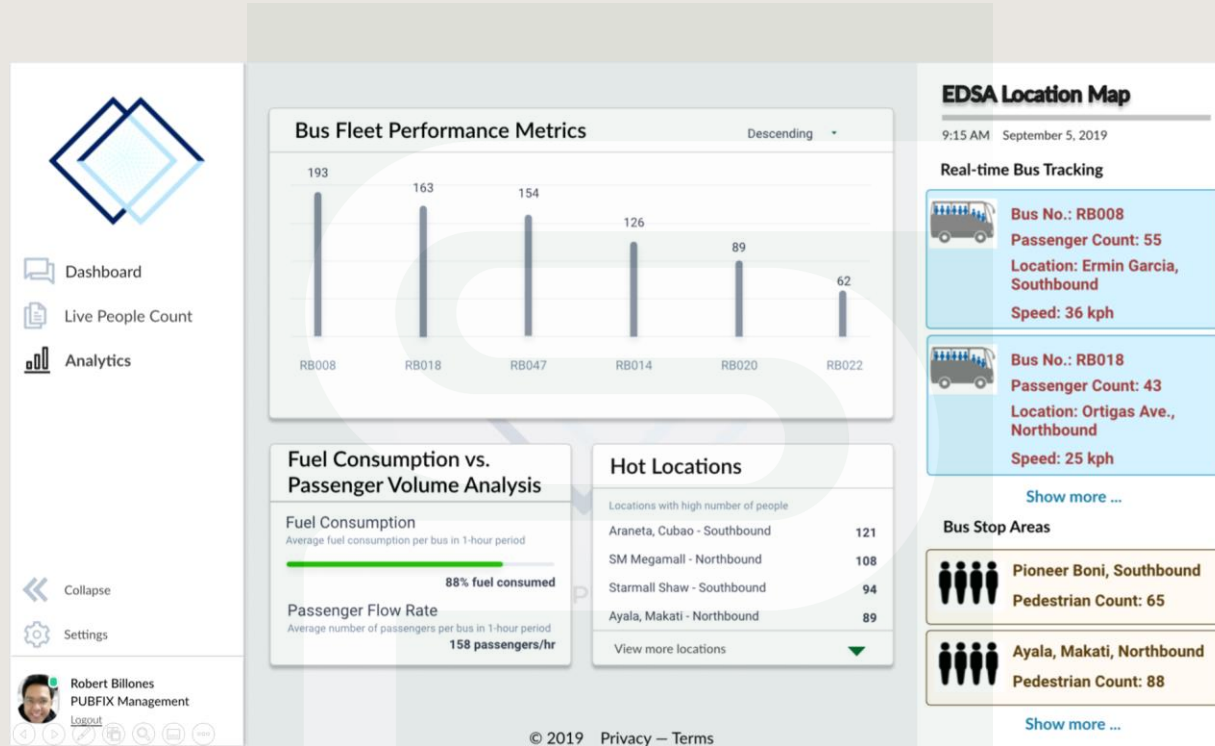
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- Web-based application
- Simple interface
- Intuitive





# USER-FRIENDLY INTERFACE



PROTOTYPE

# LETS TALK!



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