



# Bike Fleet Management System

CASE STUDY

MANTRA LABS



**India's No. 1 Bike Sharing Company** is a Venture Capital backed micro-mobility solution that allows daily commuters to rent, ride & share bikes, for a hassle-free transit within congested cities – available via its **iOS & Android app**.

With over 8,500 bikes and 500 scooters, Yulu looks to **decongest urban traffic & air pollution** by providing a scalable, affordable and clean solution for the first mile, last mile and short distance commute.



# Problem

**Yulu** required a flexible framework built for **quick scaling** – that can handle large volumes, as their platform grows increasingly popular – integration with a **real-time monitoring system**, while also providing dynamic ad-hoc **analytics & reporting**.

## Key Challenges



Demand and prediction accuracy for inventory target-level determination.

Effective optimiser for vehicle routing with hundreds of stations, using meteorology forecast prediction and real-time location coordination.

Smartphone applications for iOS and android.

Instantaneous analytics & reporting dashboard.

# Solutions

**7 Integrated** solutions enabling a **scalable**, and **easy-to-use** platform for users to access bike sharing services.



## 1 Regressor

Regression model to predict station pickup demand based on historical data.

## 2 Data Exchange Hub

Streamlined complex data integration environment facilitating Fleet Telematics using sensors, IoT.

## 3 Fleet Management Software

Real-time bike location monitoring, Re-balancing of bikes based on supply & demand prediction, Defect & maintenance management.

## 4 CRM Integration

Quick data analysis & insights about customer's history, support lifecycle, retention and profitability outcomes.

## 5 Billing Management System

Flexible architecture that supports dynamic pricing, clean & accurate invoicing, user-friendly account management, reduces bottlenecks and speeds up billing operations.

## 6 Mobile Apps

Integrated mobility apps for customer and fleet management built using Swift, React, Java.

## 7 Advanced Analytics Dashboard

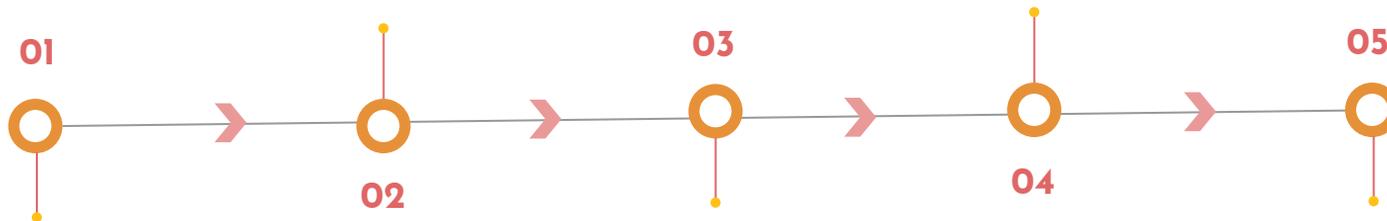
Real-time and unified view reporting dashboard built as an event-driven Node JS application.



# How We Made Yulu Work

The **user journey** begins via app booking just like booking a cab. Bikes can be unlocked via QR codes.

Able to identify **demand scenarios**, and make predictions about performance based on traffic.



Bikes are **IoT enabled**, and allows users to rent dockless bicycles via the 'Yulu Bikes' mobile app.

Once the bike is booked and then unlocked, Yulu charges the user per each half hour of **usage**.

Once the trip is completed, it can be left at any **docking station** located throughout the city.



## CUSTOMER MOBILITY APP

An integrated urban **mobility app** to book & track trips, monitor bike health, report bike issues, check personal stats, and win rewards.

The **app** allows users to view personal health stats such as calories burnt, distance covered and time elapsed for quick tracking.

It also indicates the amount of **carbon emissions** saved for each trip.

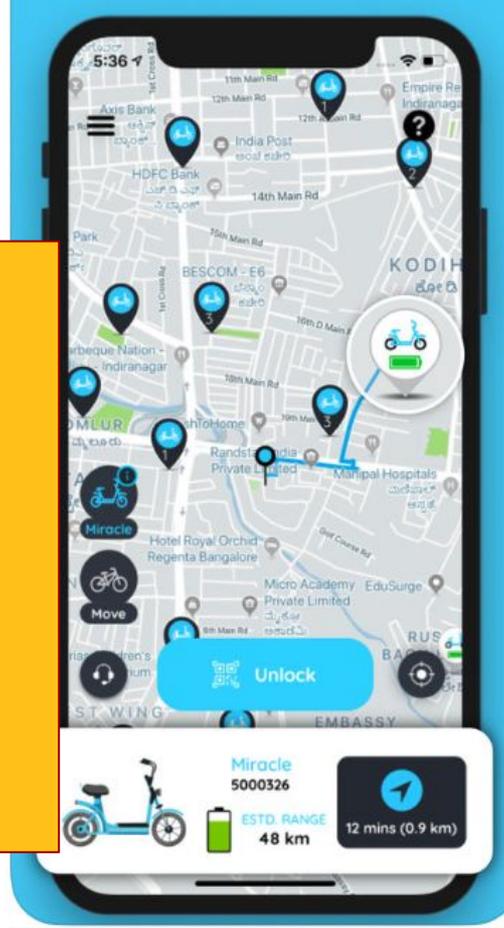
## KEY FEATURES



## CUSTOMER APP JOURNEY

After installing the app, a user can locate the nearest 'Yulu zone' on the map, and see a list of available bikes nearby.

To **begin the ride**, unlock the e-Bike by scanning the QR code.

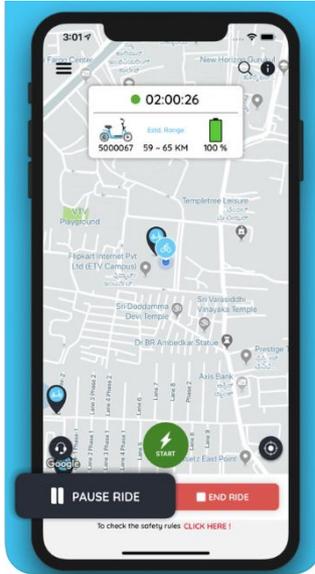




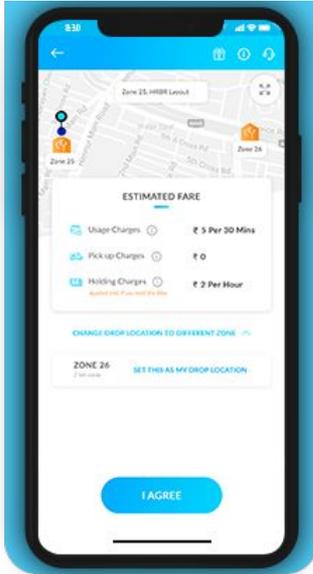
# CUSTOMER APP JOURNEY

Once the e-Bike is **unlocked**, a user can access a variety of features.

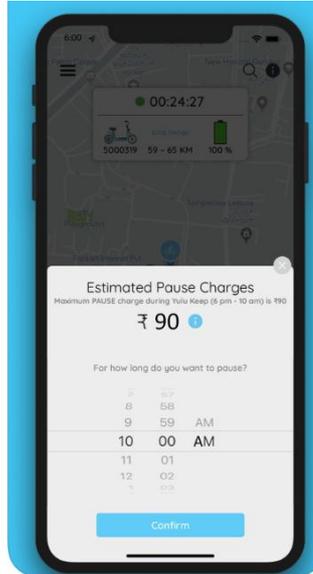
Make Multiple Stops while Riding



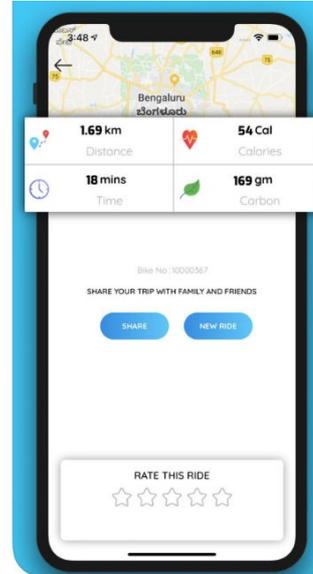
Get Fare Estimation



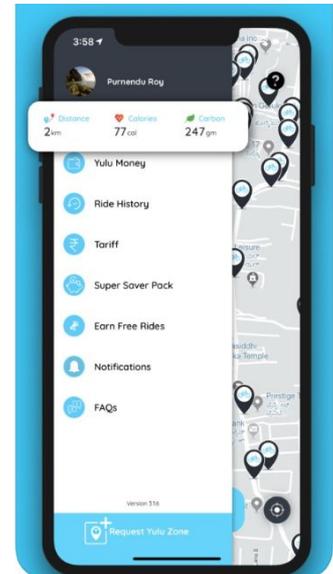
Pause ride and keep the bike overnight



Monitor Carbon Footprint



Track your ride stats



## CUSTOMER MOBILITY APP PERFORMANCE



# Key Results

4.7★

Avg. User Rating

#24

In Travel

1M+

Installs

+500k

**Unique Users**

New Users in 2018-19

2 hours+

**Fleet Productivity**

Average Vehicle Activity

8k+

**Total Fleet Strength**

Number of Bikes Integrated

+45.9%

**Expected Growth**

New Users added each Month

99.49%

**Driver Safety**

Daily Crash-free usage

98.7%

**Demand Forecasting Rate**

Predicting Rebalancing Needs

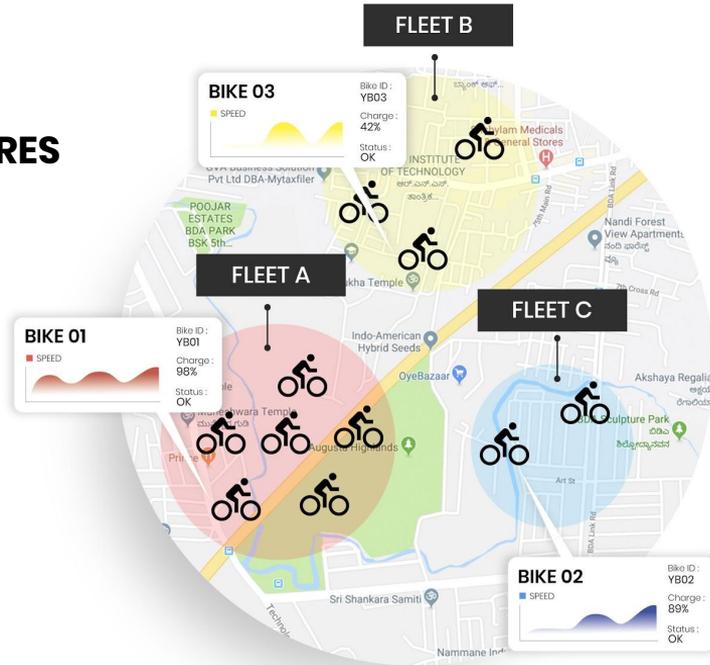


# FLEET MANAGEMENT APP

CUSTOMIZED CLOUD FRAMEWORK

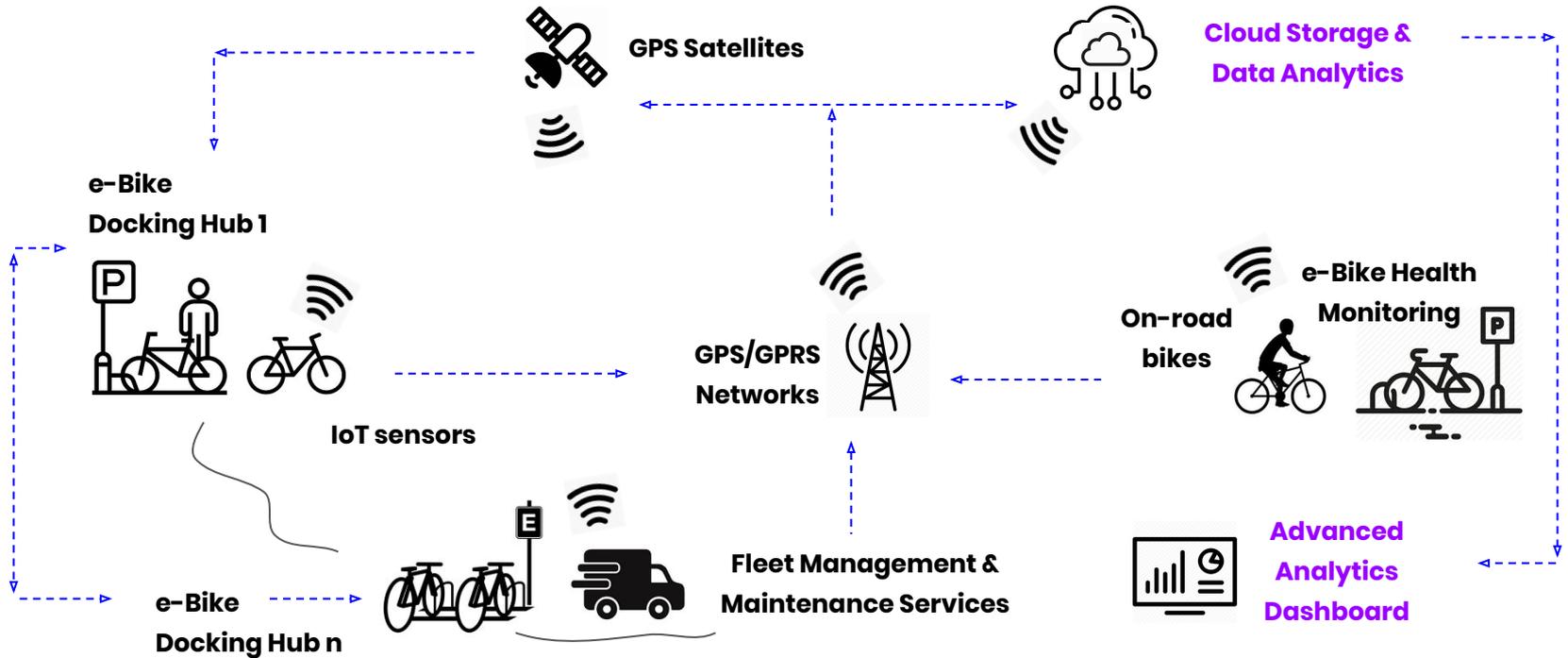
**A Solution** to identify spatial distribution of electric bikes distributed across the city, using demand-based prediction and real-time performance data.

## KEY FEATURES



# FLEET MANAGEMENT ARCHITECTURE

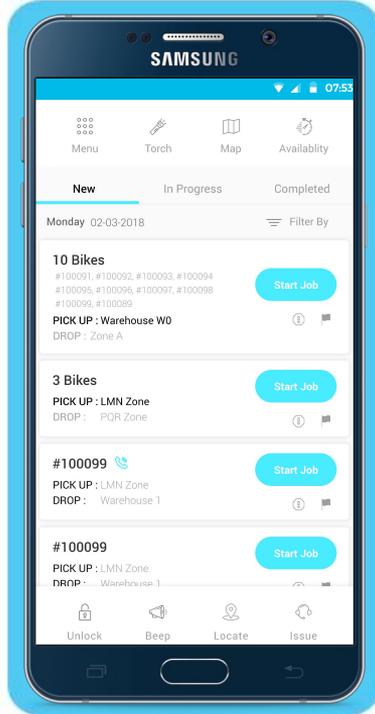
The **Solution** enables Yulu to scale its bike performance monitoring capabilities. With **analytics**, Yulu can predict maintenance requirements and better manage service supply chains.



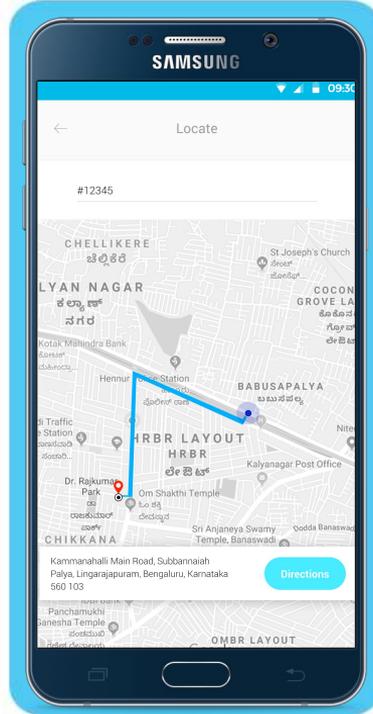
# Fleet Management App Journey



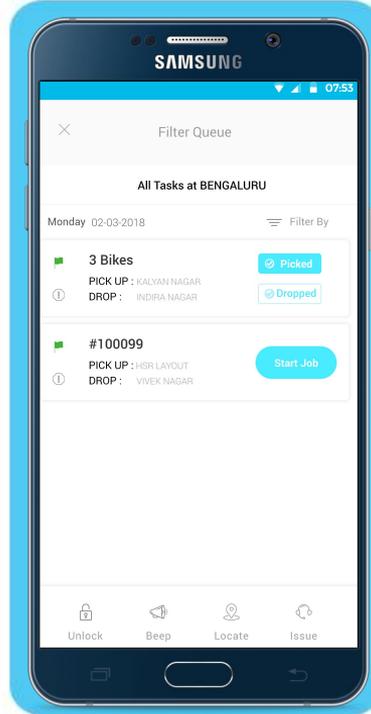
Assign Daily  
Tasks



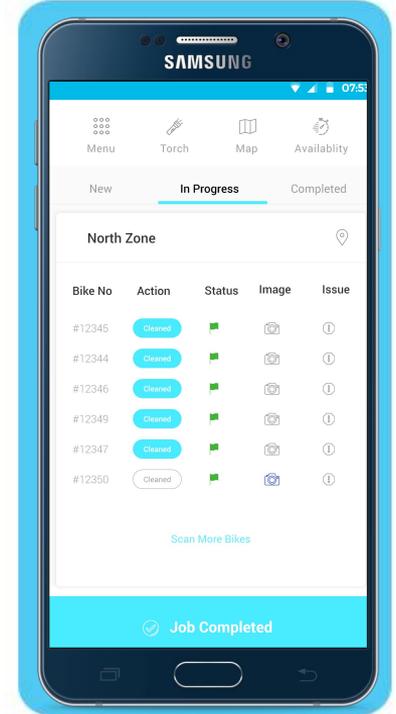
View Tasks By  
Location



Coordinate Same  
Area Pickups



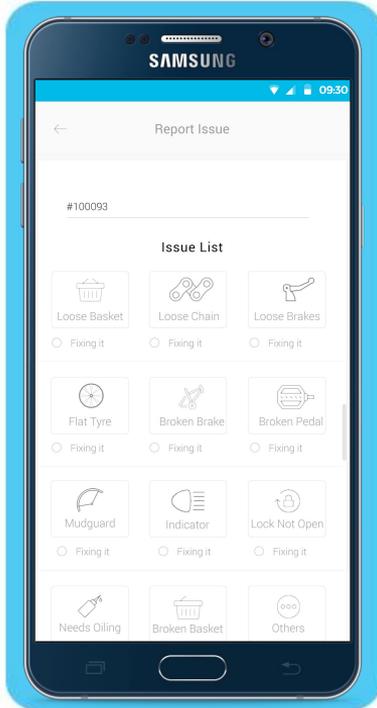
View Status of 'In  
Progress' Tasks



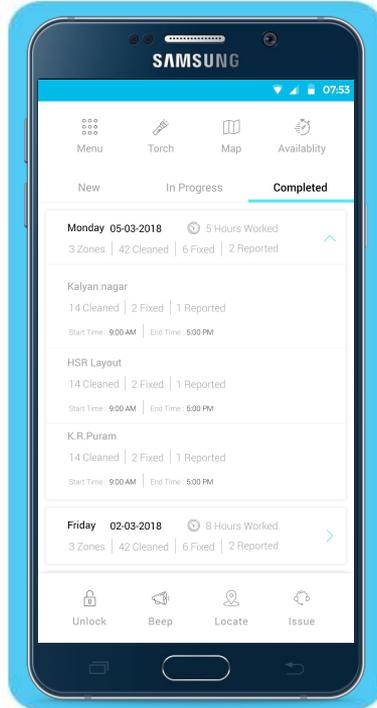
# Fleet Management App Journey



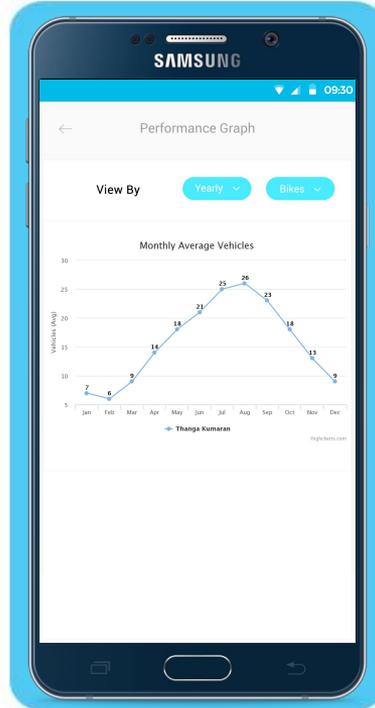
Bike Safety Issues  
Quick Resolution



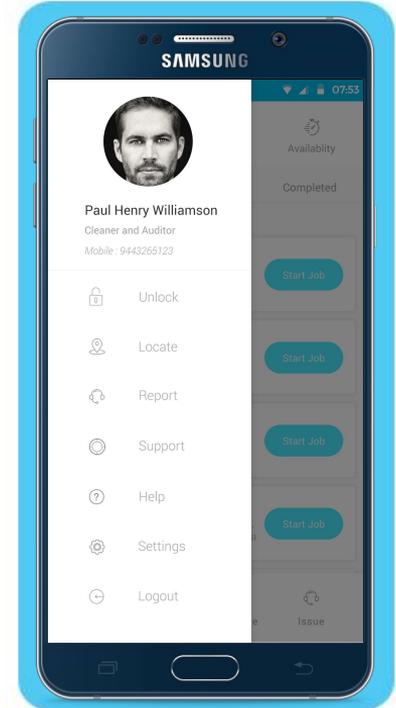
View History of  
Completed Tasks



Work Performance  
Graph



User Behavior &  
Profiling





# About Us

- ◆ Domain Focused Products and Solutions for the Digital Insurer
- ◆ Real World Problem Solving using Artificial Intelligence and Customer Experience Consulting



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**150+**  
GEEKS

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# Leading Clients



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