

RoadAID

Longterm internship Project Submitted

In partial fulfillment of the requirements for the award of the degree

Of

BACHELOR OF TECHNOLOGY

By

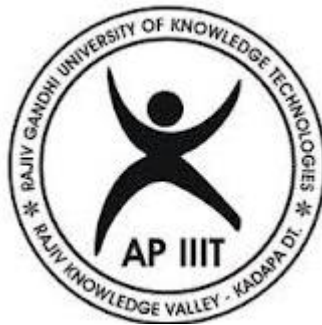
T. SREE DEVI

Roll No: R170221

Under the supervision of

LingaMurthy

(Assistant Professor)



Department of Computer Science and Engineering

Rajiv Gandhi University of Knowledge Technologies, RK Valley

Idupulapaya, Kadapa(Dist), Andhra Pradesh



Rajiv Gandhi University of Knowledge Technologies, RK Valley

Idupulapaya, Kadapa (Dist), Andhra Pradesh, 516330

CERTIFICATE

This is to certify that the project work titled “**RoadAID**” is a long internship submitted by T.SREE DEVI (R170221) in the department of Computer Science and Engineering in partial fulfillment of requirements for the award of degree of Bachelor of Technology for the year 2022-2023 carried out the work under the supervision

Internal Guide

Mr. LINGAMURTHY

(Assistant Professor)

HEAD OF THE DEPARTMENT

Mr. SATYANANDARAM

(Assistant Professor)

Project Coordinator

M.MUNI BABU
(Assistant Professor)



RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES
(A.P. Government Act 18 of 2008)
RGUKT-RKValley, Kadapa Dist - 516330

CERTIFICATE OF EXAMINATION

This is to certify that the work entitled, “RoadAID” is the bonafied work of T.SREE DEVI (*R170221*) . Here by accord our approval of it as a study carried out and presented in a manner required for its acceptance Major of Bachelor of Technology for which it has been submitted. This approval does not necessarily endorse or accept every statement made, opinion expressed or conclusion drawn, as a recorded in this thesis. It only signifies the acceptance of this thesis for the purpose for which it has been submitted.

LingaMurthy
Project Supervisor
Dept. of CSE
RGUKT IIIT RKValley

Examiner
Project Examiner
Lecturer Dept. of CSE
RGUKT IIIT RKValley



RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES
(A.P. Government Act 18 of 2008)
RGUKT-RKValley, Kadapa Dist – 516330

DECLARATION

I am **T.SREE DEVI (R170221)** hereby declare that the project report entitle , “RoadAID” done under the guidance of **Mr LingaMurthy** is submitted for minor project of **Bachelor of Technology in Computer Science and Engineering**, is an authentic record of our own work carried out under the supervision of **Mr LingaMurthy** , the Major Project December 2022 - January 2023 at RGUKT – RK Valley.

We also declare that this project is a result of our own effort and has not been copied or imitated from any source. Citations from any websites are mentioned in the references.

The results embodied in this project report have not been submitted to any other university or institute for the award of any degree or diploma.

T.SREE DEVI (R170221)
Date: 26-01-2023
Place: RK Valley.

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and whose constant guidance and encouragement crown all the efforts success. We are extremely grateful to our respected Director, **Prof. K. Sandhya Rani** Mam for fostering an excellent academic climate in our institution. We also express my sincere gratitude to our respected Head of the Department **Mr. SatyaNandaram** Sir for his encouragement, overall guidance in viewing this project a good asset and effort in bringing out this project. We would like to convey thanks to my project guide

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My sincere thanks to all the members who helped me directly and indirectly for the completion of project work. I express my profound gratitude to all our friends and family members for their encouragement.

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ABSTRACT

RoadAID - Real Time O&M Monitoring Toll

- RoadAid was launched in 2012, it is a way for commuters to report traffic jams, issues, accidents (if any) and police speed traps.
- RoadAID app allows site team to report pavement defects, incidents and accidents, issues with road assets, etc.
- Site teams can upload all O&M DPRS.
- RoadAid delivers real-time traffic insight for smartphones based on crowdsourcing.
- RoadAid also performs integrated rapid emergency system designed for highways.
- RoadAid is the best road assistance tool so far developed, the pot holes on the highway are found, reported and solved quickly.
- By empowering commuters to take full advantage of modern mobility, our vision is to enable RoadAid users to be forefront of traffic challenges.
- Incorporating the latest technologies available on smartphones, users worldwide are joined together by one aim, to save time on the road.
- Over 250000 reports have been submitted through RoadAid, from various users in different countries.

OVERVIEW

RoadAID

- RoadAID is an easy to adopt software platform that uses latest advances in mobile and web technologies to simplify the recording and analysis of daily and routine maintenance in Highway Operation. RoadAID is designed as a cloud solution to make it easier to share and access data from your office, home or in the field.

OBJECTIVES OF ROAD AID

- **Asset Data Management**



RoadAID users can view detailed location, physical condition and operational information of your highway in a single, secure data repository. Visualize your data to determine the most effective asset maintenance strategies. Track conditions of multiple asset types including roads, bridges, signs, signals, lights etc.

- **Communications Management**



RoadAID allows the communication flow between Site Office/Head Office and Field Engineers, Supervisors and Operators. Field staff can view current task lists, update asset data and complete maintenance activities and inspections using the platform.

- **Audit and Inspection Management**



Aside from usual monitoring RoadAID provides tracking, reporting and fault management through a location-based user interface, one can use the platform to schedule and track site inspections and generate IC reports as per NHAI guidelines.

- **Incident Management**

RoadAID allows its users to record, assign and resolve all events and incidents that occurred on the road.

- **Advanced Reporting**



RoadAID's reporting and analytical tools allow users to easily generate standard, custom, ad-hoc reports and charts for your network condition and needs. RoadAID platform is flexible to configure around your existing business processes. If necessary, our development team are on hand to customize new functionality or expand existing elements to support individual organizational requirements.

- **Work Order Management**



RoadAID with Work Order Management, an organization can track all work and understand what is behind schedule and why. One can plan different

tasks and actions to be performed on the road, view and monitor resource availability, prioritize tasks and effectively schedule resources for maintenance activities.

Technologies Used in RoadAID

RoadAID, web platform contains,

1. Front-End
2. Back-End
3. App

- **Front-End Technologies :-**

- **Angular Framework –**

- RoadAID uses Angular, a platform and framework for building single-page client applications using HTML and TypeScript. Angular is written in TypeScript. It implements core and optional functionality as a set of TypeScript libraries that you import into your applications.
 - A component-based framework for building scalable web applications.
 - A collection of well-integrated libraries that cover a wide variety of features, including routing, forms management, client-server communication, and more
 - A suite of developer tools to help you develop, build, test, and update your code

➤ HTML5 :- RoadAid uses Hyper Text Markup Language 5 for structuring the page and the presentation.

○

- CSS and SCSS – RoadAID uses CSS as a styling language that lets us create, design, and style various web pages. SCSS is a special file type in a SASS program we need to write which can also be used for RoadAID styling.
- TypeScript – We use Typescript in RoadAid, it is strongly typed and rigid language, gives better tooling at any scale.

- Back-End Technologies used :-

- MEAN Stack – RoadAID uses MEAN Stack for its backend development, we, in RoadAID use MongoDB and NodeJS especially. The reason for using is, we develop apps and web using Javascript only.
- MongoDB – RoadAID uses MongoDB in its backend development. It is a document database we sue to build highly available and scalable applications, with flexible schema approach.
- NodeJS – RoadAID uses NodeJs for its server side programming, back-end API services.

Working of RoadAID

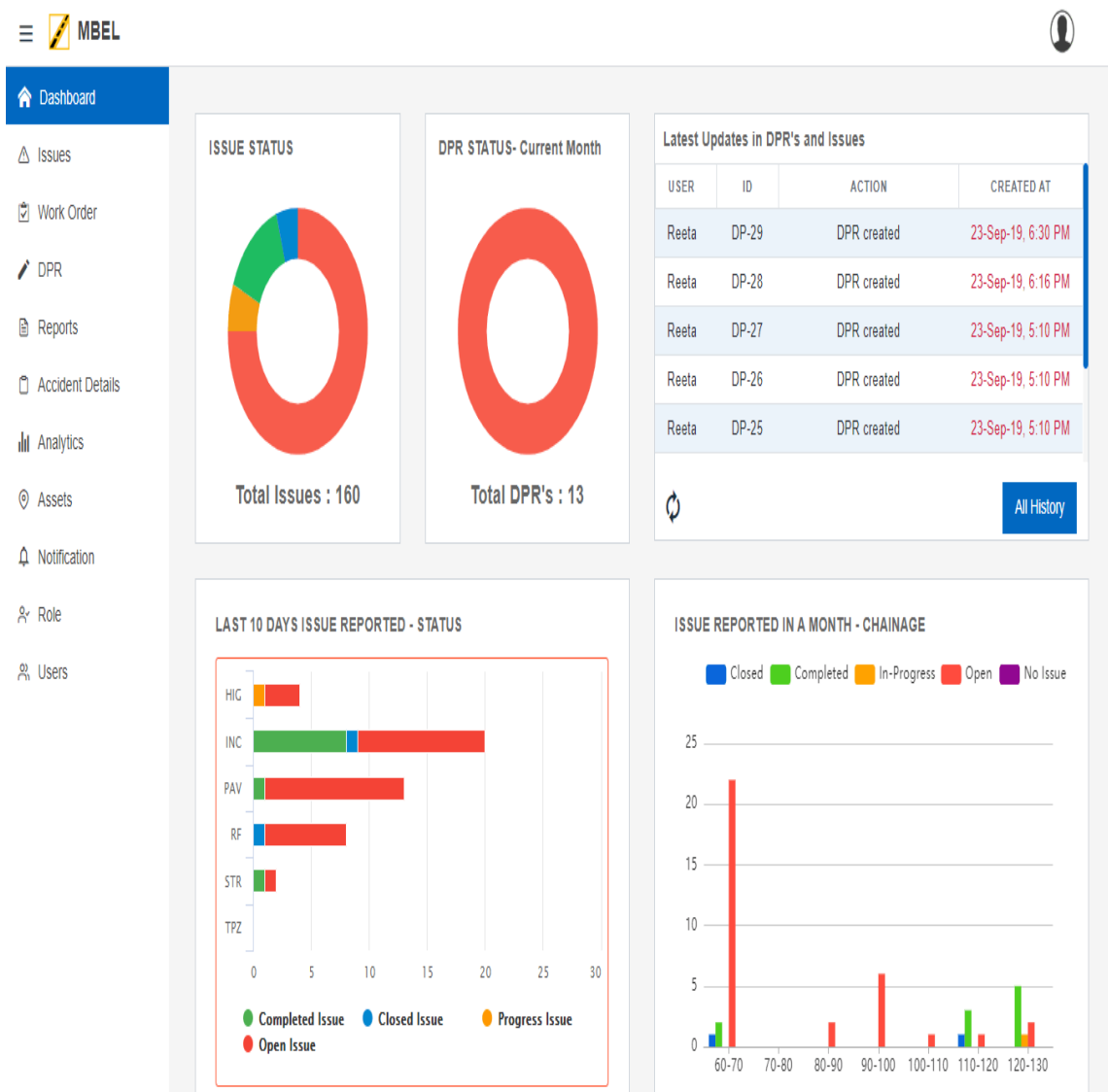
- Users or site workers will use fully customizable application to report and view all issues, incidents and accidents, thereby enabling user a virtualized view of highways and their control.



- Users there by gets concise information like,
 - The dashboards
 - Issues status

- Daily progress reports and its status
- Latest updates in DPR's and issues
- Last 20 days issues reported (if any)
- Issues reported in a month -chainage
- Issue chart
- Accident chart
- IMS charts etc

of the road they choose on a web user interface in our website



- Users can view, access and can filter out the data as they need according to their requirements, RoadAID offers full flexibility to do so.
- RoadAid also incorporated the feature that users have permissions of various levels.

MBEL

Issues

Issue List

Issues Map

Create Issue

Custom Issue

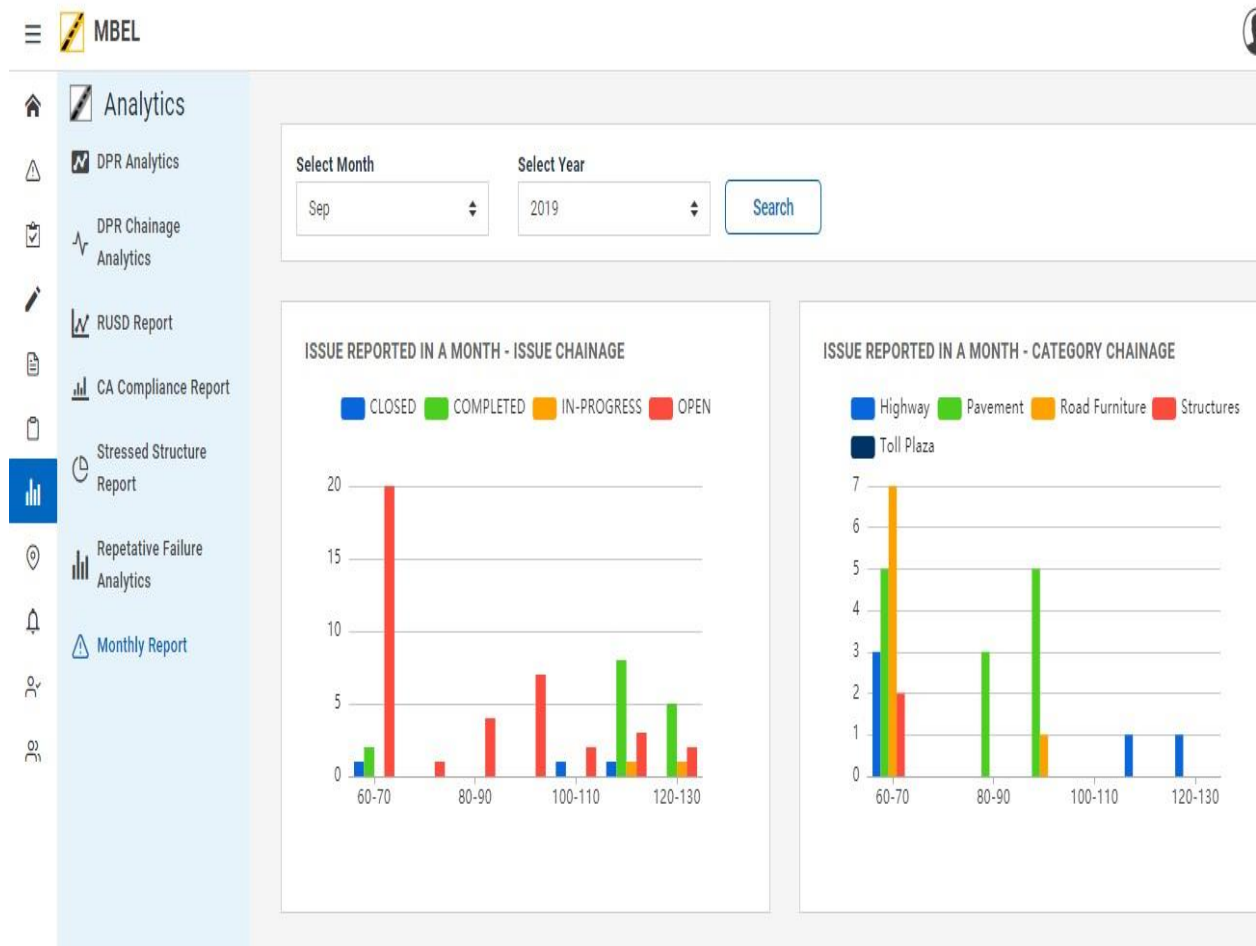
ALL ISSUES TO DO IN-PROGRESS COMPLETED CLOSED SHOW ON PAGE: 10 DOWNLOAD

ID	ISSUE TYPE	CHAINAGE	PRIORITY	STATUS	REPORTEE	ASSIGNEE	DATE CREATED	TARGET
PAV-59	Ravelling	69	not assigned	OPEN	vinod		20-Sep-19, 2:14:24 PM	
RF-22	Sign Board	69	not assigned	OPEN	vinod		20-Sep-19, 2:10:15 PM	
RF-21	Traffic Blinkers & Signals	98	not assigned	OPEN	varun		20-Sep-19, 1:24:30 PM	
RF-20	Pavement Marking	65	not assigned	OPEN	varun	varun	20-Sep-19, 1:22:22 PM	20-Sep-
HW-26	ROW Cleaning Works	65	not assigned	OPEN	varun		20-Sep-19, 1:21:34 PM	
PAV-58	Rutting	69	not assigned	OPEN	vinod		20-Sep-19, 1:17:31 PM	
HW-25	Drain	120	not assigned	IN-PROGRESS	varun		20-Sep-19, 12:35:57 PM	
HW-24	Kerb	66	not assigned	OPEN	Ravi Kumar		20-Sep-19, 10:31:32 AM	
RF-19	Sign Board	69	not assigned	OPEN	vinod		19-Sep-19, 3:10:44 PM	
RF-18	Sign Board	69	not assigned	OPEN	vinod		19-Sep-19, 2:52:34 PM	

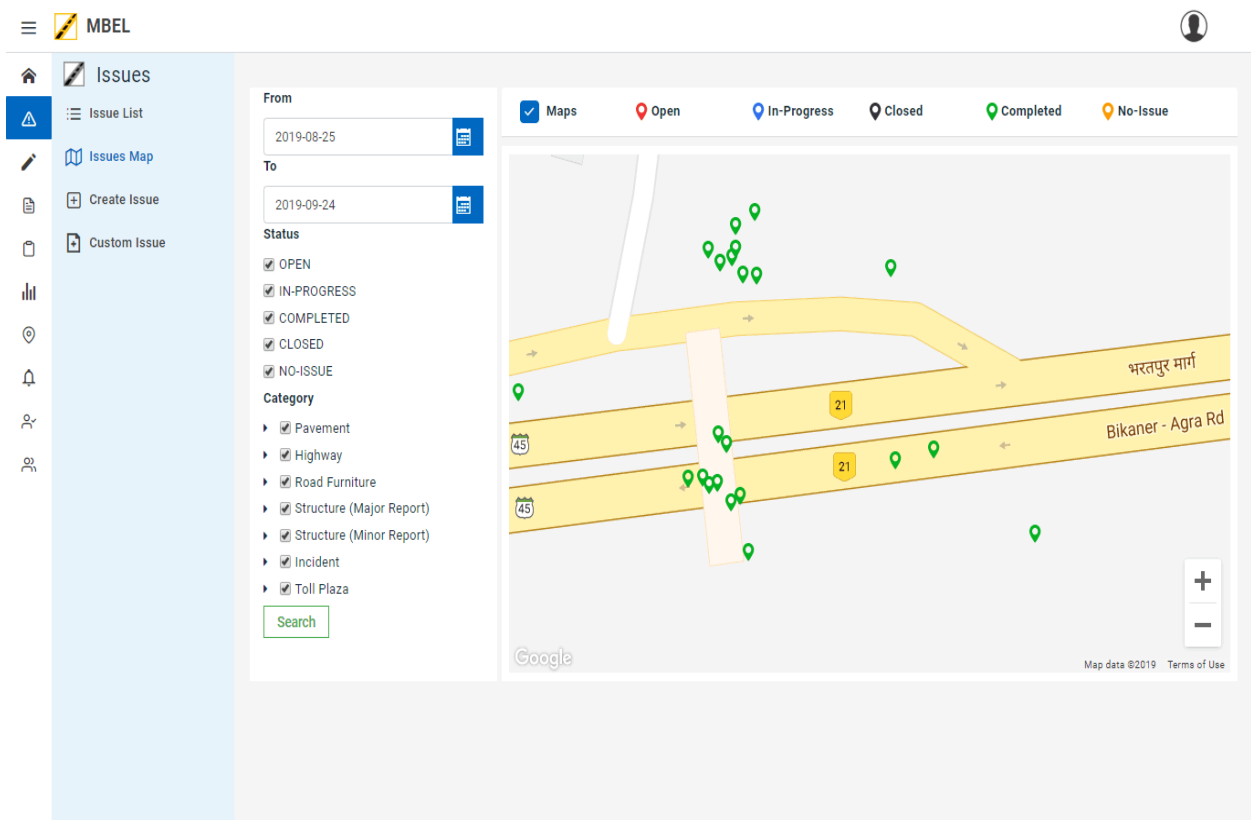
← Previous 1 2 3 ... 18 Next →

- Users can get the visual insights of their data. RoadAid provides them with visual representation of daily and monthly reports of data.

- These reports not only helps to get insights, but also they come along with badges like,
 - Active
 - In-Active
 - Open
 - In-progress
 - Submitted
 - Closed

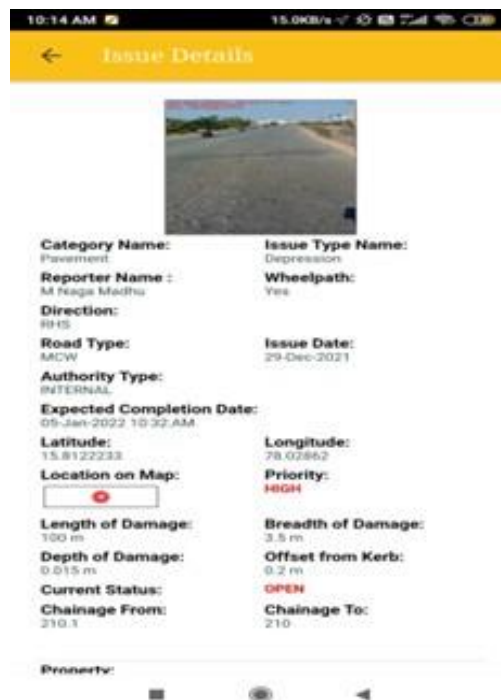


- RoadAID provides users to view all reported issues in map and analyse repeated issues with effectively.
- The users according to the location in map, can work on the issue, submit the completed work, report after completing it and term it as closed.
- RoadAid has various assets like,
 - Highways
 - Pavements
 - Road-Furniture
 - Structures
 - Incidents and
 - Tollplaza

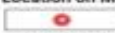


- RoadAid enables users to view the all issues, incidents, accidents and others reported within 50 meters.

This will fasten the working of the entire highway team to solve the issue, ensures efficiency of work by using geographical factors.



Issue Details

Category Name: Pavement
Reporter Name: M Naga Madhu
Direction: BHS
Road Type: MCW
Authority Type: INTERNAL
Expected Completion Date: 09-Jan-2022 10:32 AM
Latitude: 13.8122233
Location on Map: 
Length of Damage: 100 m
Depth of Damage: 0.015 m
Current Status:
Chainage From: 210.1

Issue Type Name: Depression
Wheelpath: Yes
Issue Date: 29-Dec-2021
Longitude: 78.02862
Priority: HIGH
Breadth of Damage: 3.5 m
Offset from Kerb: 0.2 m
Chainage To: 210

Property:

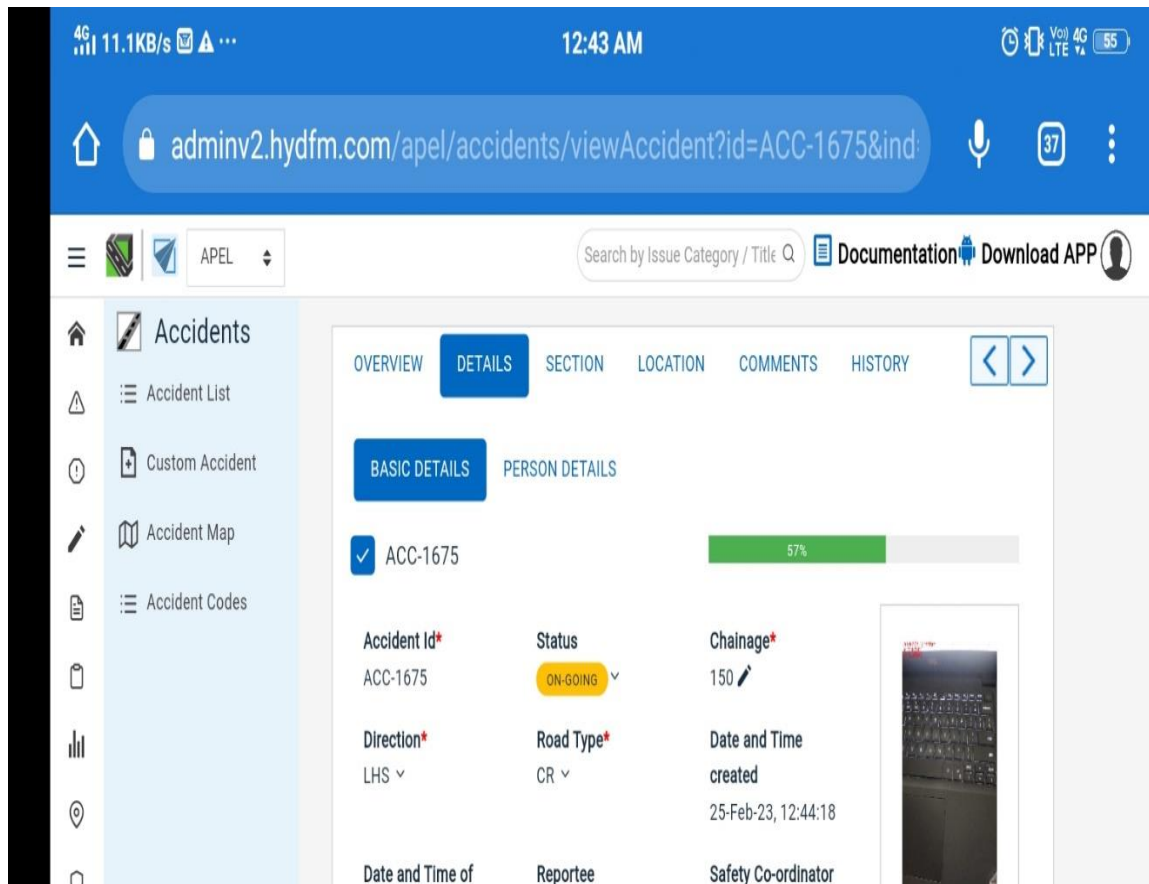
- RoadAid also efficiently records the information, analyses it and claims the bills submitted by users.

It helps coping financial matters in working cycle and automates the entire monetary system involved in highway management.



Few Contributions I've Made in RoadAID :

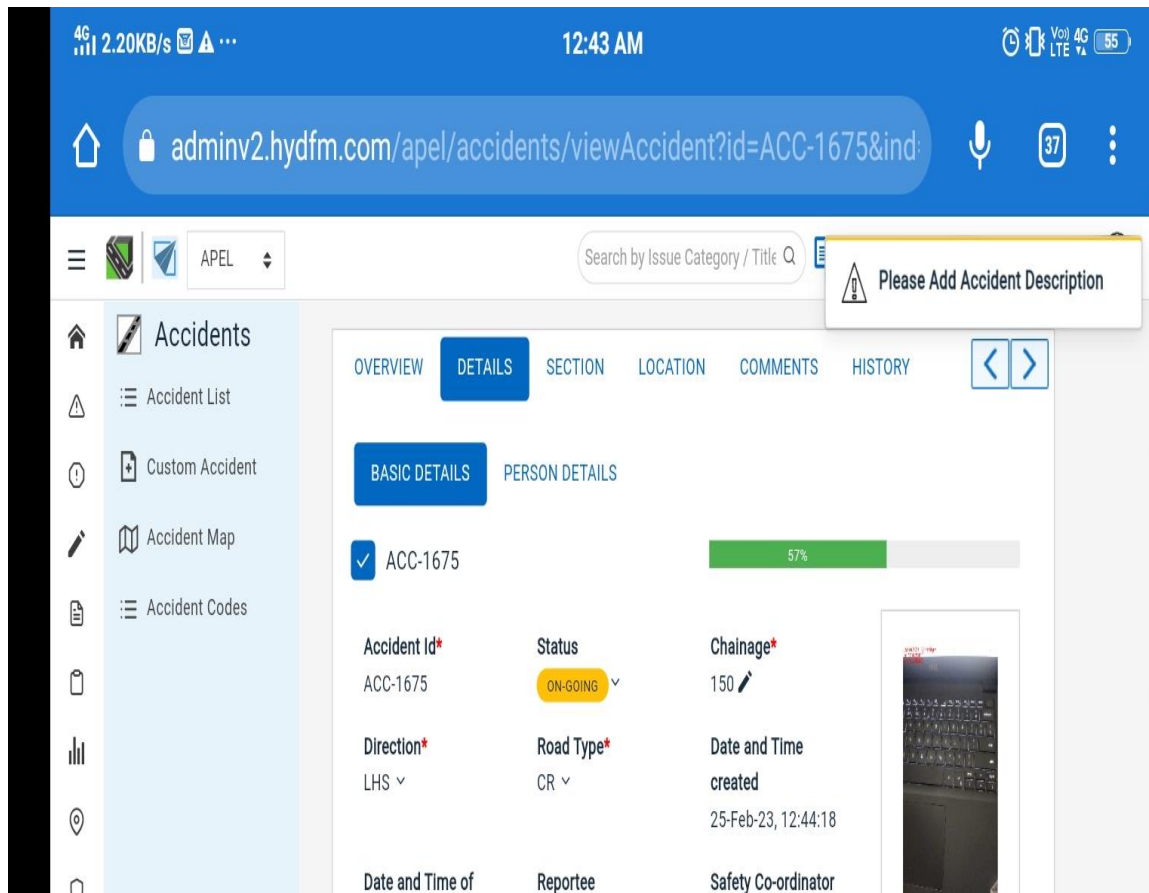
1. The progress bar displaying how much a user filled the form in Accident View Component in order to submit it.



2. Show toaster warning with specific values while submitting specific field instead of collectively saying, 'Please fill all details'.

Toasters helps in informing user, where they have to fill the details, in order to submit the form successfully.

In RoadAid, we display Toasts as Warnings.



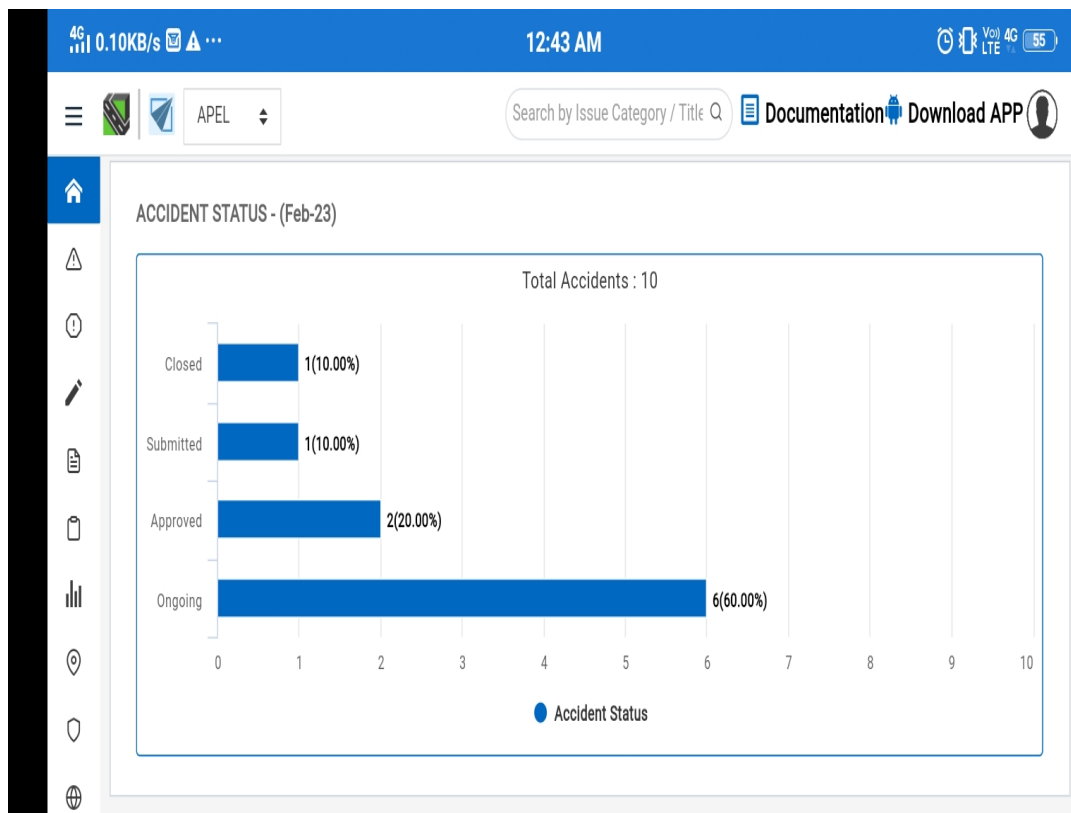
3. Integrated backend for new charts in dashboard and Added two new charts i.e. Accident status chart and Accident Type chart.

Both charts are in dashboard component itself.

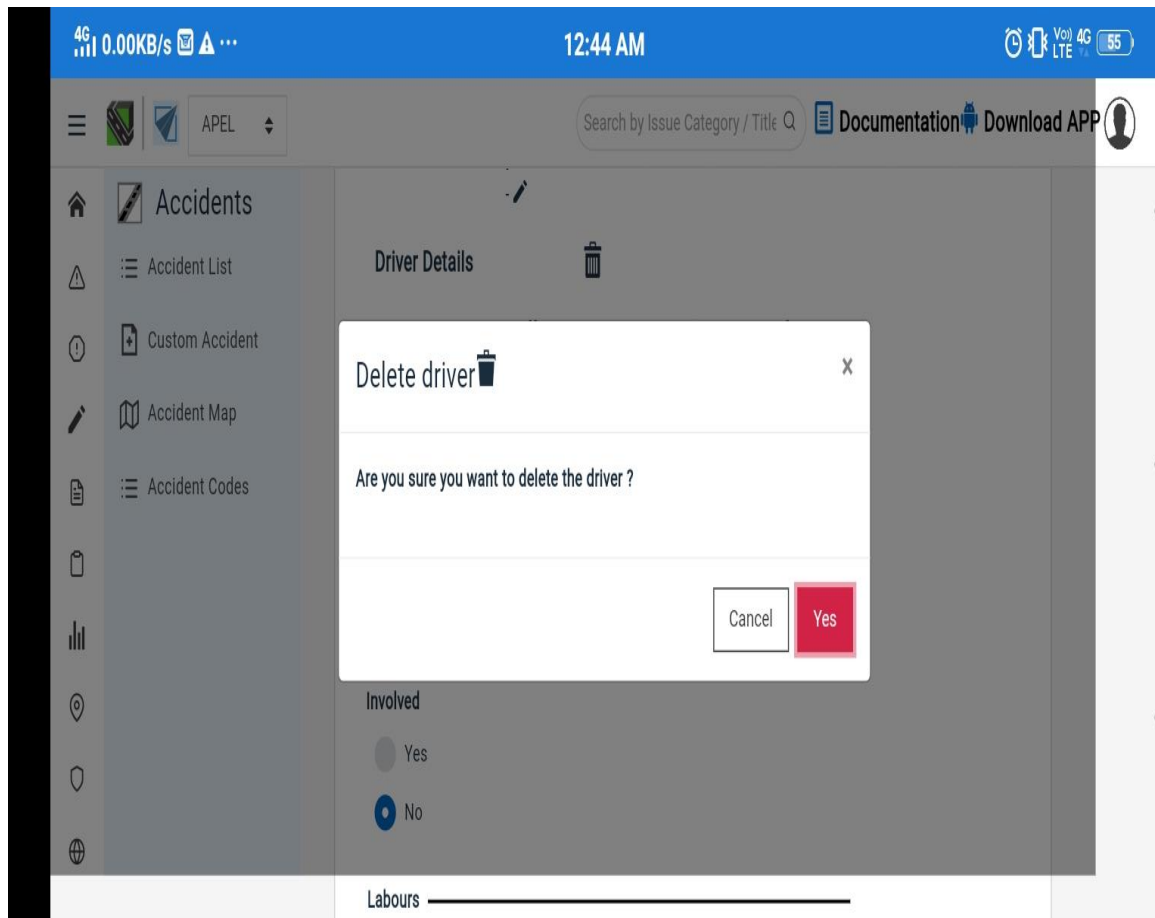
These accident charts enables visualising users,

- The no.of Fatal accidents occurred
- The no.of grievous accidents occurred
- The no.of Minor accidents occurred
- The no.of non-Injured accidents occurred
- The no.of unknown accidents occurred.
- The No.of people injured in fatal accident

- The no.of people grievously injured
- The no.of people minorly injured
- The no.of people Not injured
- The no.of people unknown in an accident
- Total no.of people injured etc.



4. An option to delete person and driver details in Accident View component along with 'Are you sure you want to delete?' , to reassure the user.
This ensures that user will not delete the driver details mistakenly, it confirms before doing any action.
We design UI such that the number of mistakes can be made is reduced.

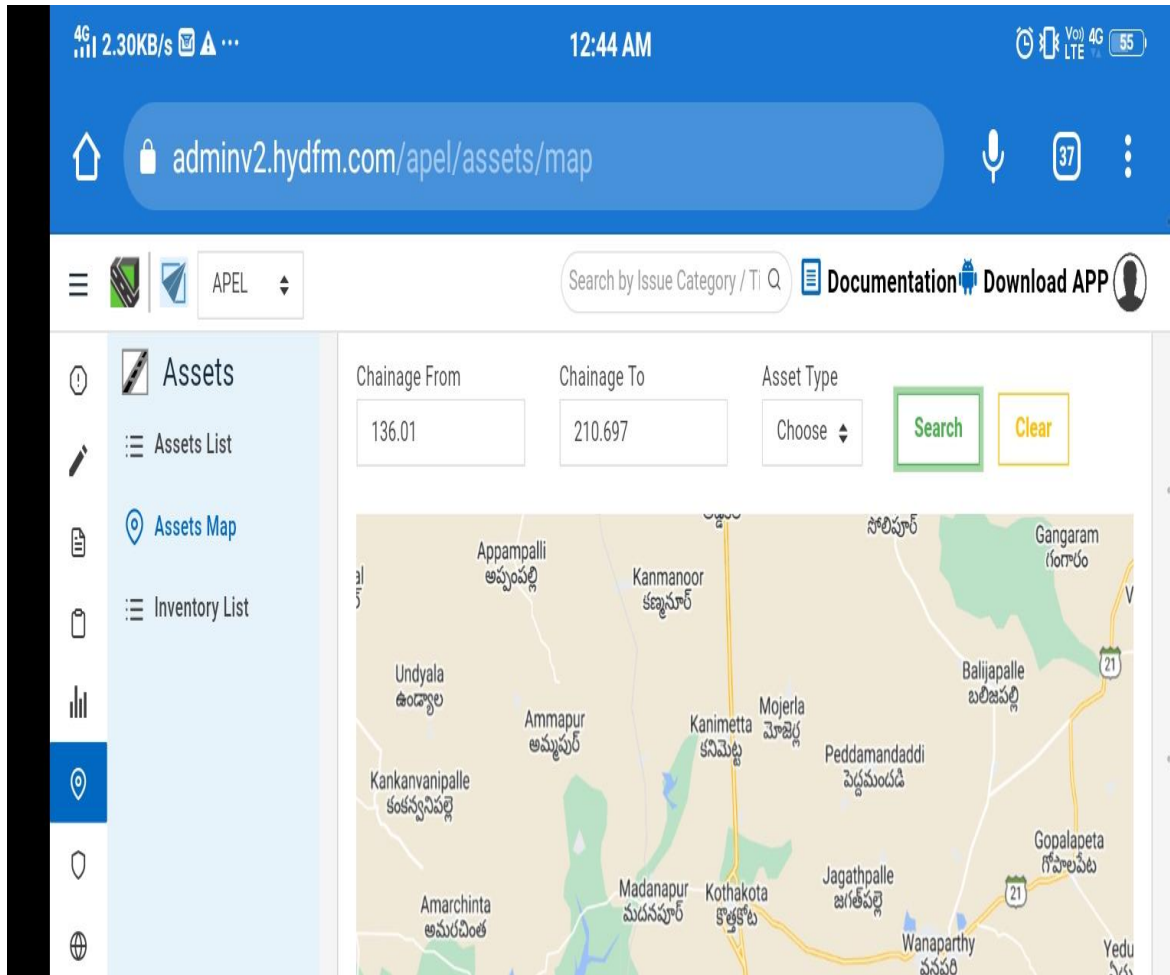


5. Showing initial location of assets in asset map component.

Assets types we show are :-

- Highways
- Pavements
- Road Furniture
- Structures
- Incidents
- Tollplaza

With different statuses available for each making it easy to locate.



6. Made header responsive in RoadAID.

The user can access Roadaid in different screen sizes and settings like,

- 1920×1080 (9.94%)
- 1366×768 (6.22%)
- 360×640 (5.88%)
- 414×896 (4.21%)
- 1536×864 (3.94%)
- 375×667 (3.74%)

The screenshot shows a web application interface for managing issues. The top navigation bar includes a search bar, a 'Documentation' link, and a 'Download APP' button. The left sidebar contains a menu with options like 'Issues', 'Issue List', 'Issues Map', 'Create Issue', 'Custom Issue', and 'Issues Strip Chart'. The main content area displays a table of issues with the following data:

ID	ISSUE TYPE	CHAINAGE	PRIORITY	STATUS	REPORTEE
PAV-3117	Longitudinal cracks	139	HIGH	IN-PROGRESS	Sowmya Sree
HW-1394	Bus Bay	150	HIGH	IN-PROGRESS	Jahnavi Disamcharla
HW-1393	Bus Bay	140	HIGH	OPEN	Jahnavi Disamcharla
HW-1392	Drain	138	HIGH	COMPLETED	Sreedevi

7. Added new fields based on Asset Type in Asset Details page and list table.

Assets tables provides almost all user related details about assets there by like :-

- Asset Id
- Chainage of the Asset
- Latitude
- Longitude

These details helps user to identify

4G 0.00KB/s

12:45 AM

VoLTE 4G 55

≡

Assets

Assets List

Assets Map

Inventory List

Search by Issue Category / Title

Documentation

Download APP

Assets

Assets List

Assets Map

Inventory List

SAP ASSETS LIST

CHAINAGE ASSETS LIST

No File Choser

Browse

Save

Download Template

Generate CSV

SHOW ON PAGE: 10

ASSET ID	CHAINAGE NUMBER	LAT	LONG
Chain-999	145.990	16.268323	77.955262
Chain-998	145.980	16.268413	77.955262
Chain-997	145.970	16.268504	77.955262
Chain-996	145.960	16.268594	77.955261
Chain-995	145.950	16.268684	77.955261
Chain-994	145.940	16.268775	77.955261

TESTING ROADAID

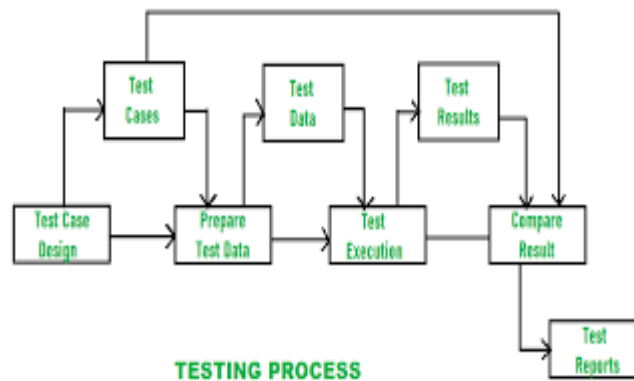
RoadAID is tested manually after its development, each feature is tested individually.

- First, we note down the requirements we have to meet.
Ex:- Create new component 'Users' to display the data of the all site workers using RoadAID.



- As second step, we clearly design the test plan based on the requirements after development.

Ex:- Use Manual Testing to test the features of the Users component.



- As third step we write test cases.

Ex:- (i) Users should be displayed according to the date of the creation in the users list page.

- (ii) User details like, name, age, jobdescription, reporting managers should be displayed according to the user and should be valid credentials.
- (iii) Users can edit the details and submit them if they are willing to.

Project Name: _____

Test Case Template

Test Case ID: TC_10	Test Designed by: <Name>
Test Priority: (Low/Medium/High): Med	Test Designed date: <Date>
Module Name: Google login screen	Test Executed by: <Name>
Test Title: Verify login with valid username and password	Test Execution date: <Date>
Description: Test the Google login page	

Pre conditions: User has valid username and password

Dependencies: _____

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Navigate to login page	User: sample@gmail.com	User should be able to login	User is navigated to	Pass	
2	Provide valid username	Password: 1234		Redirected with successful		
3	Provide valid password			login		
4	Click on login button					

Post conditions: User is validated with database and successfully login to account. The account session details are logged in database.

- As fourth step we review the test cases if all of them covered broadly.

Test Execution Report Template

Module Name	Total No. of T.C written	Total No. of T.C Execution	Total No. of T.C Pass	Total No. of T.C Fail	Pass %	Fail %
Total						


- As fifth step, we test and verify.

Ex:- The users list is displayed when navigated to user list page – yes it works.

Step	Test Data	Expected Result	Actual Result	Priority	Status
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : n Password : i : n	Length not less than 2 characters			
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : double Password : i : n	Length not greater than 10 characters			
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : max Password : i : n	Special Characters Not Allowed in Login			
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : low Password : i : n	Special Characters Not Allowed in Login			
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : and Password : i : n	Password of up to 6 Characters			
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : and Password : i : and	Password not a 6 Characters			
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : and Password : and and and	Password of 6 to 10 Characters			
Enter (Q) in Account Enter I, option 8, Password & Press Submit	Length : and Password : i : and and and	Password of up to 10 Characters			
Enter (Q) in Account then Click Home Link located at left side.		Home Page should be displayed			
Enter (Q) in Account then Click Sign Up Link located at left side.		Sign Up page should be displayed			
Enter (Q) in Account then Click New User's Link located at left side.		New Users Registration Form should be displayed			
Enter (Q) in Account then Click Reference Link located at left side.		Page with Information and Credit From the Admin Users should be displayed			
Enter (Q) in Account then Click Contact Us Link located at left side.		Contact Information page should be displayed			
Enter (Q) in Account then Click Terms Link located at left side.		Terms of Use service page should be displayed			
Enter (Q) in Account then Click WAP US/RS Link located at login box.		New Users Registration Form should be displayed			

- As sixth step, we will check if there are any bugs, report them if there are any and fix them.

```

v 2  gremlin-python/src/main/jython/gremlin_python/process/strategies.py

```

1	@@ -64,7 +64,7 @@ def __init__(self, partition_key=None, write_partition=None, read_partitions=None):
64	self.configuration["partitionKey"] = partition_key
65	if write_partition is not None:
66	self.configuration["writePartition"] = write_partition
67	if write_partition is not None:
67	if read_partitions is not None:
68	self.configuration["readPartition"] = read_partition
69	if include_meta_properties is not None:
70	self.configuration["includeMetaProperties"] = include_meta_properties
2	

REFERENCES

1. <https://adminv2.hydfm.com>
2. <https://www.roadaid.in/>

CONCLUSION

RoadAID :- RoadAID is continuously evolving for the betterment of highway safety and management. We develop and deploy new features which will make site operations and tasks much easier, to view, report and manage for all our users. RoadAID is now fully functional platform with great aspects of user customization, provides data security using Google cloud solutions and many other features for the user assistance.