D. Y. Patil Technical Campus

Faculty of Engineering & Faculty of Management,

Talsande (Polytechnic)

A

Report

On

"Road Health Tracker"

Submitted By

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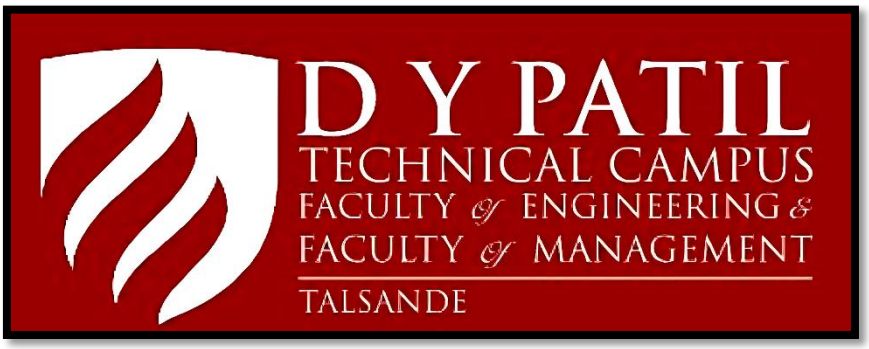
Under The Guidance Of

Ms. J. N. Gurav



Department of Computer Engineering

2023 – 24

D. Y. Patil Technical Campus

Faculty of Engineering & Faculty of Management,

Talsande (Polytechnic)

CERTIFICATE

This is to certify that,

Mr. Atharv Milind Kolekar

Mr. Rajvardhan Vijay Yadav

Mr. Shreyash Rajendra Mulik

Mr. Sanskar Mandar Kulkarni

has successfully completed the term work for **CPE** entitled **"Road Health Tracker",** towards the partial fulfillment of **Sem VI** course of msbte, during the academic year **2023-24.**

Ms. J. N. Gurav	**Mr. R. S. Kumbhar**	**Dr. S. R. Pawaskar**
Guide	**HOD**	**Principal**

External Examiner

Department of Computer Engineering 2023-24

DECLARATION

We hereby declare that the project work report entitles **"Road Health Tracker"**, which is being submitted to **D. Y. Patil Technical Campus, Faculty of Engineering & Faculty of Management, Talsande (Polytechnic)** in partial fulfillment of **Sem VI** course, is a benefited report of the work carried out by me the material contained in this report has not been submitted to any university or institution for the award of any degree.

Place: Talsande

Date:

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We express our sincere thanks to **Mr. R. S. Kumbhar,** Head of Computer Engineering. Dept. Whose supervision inspiration and valuable guidance, helped we a lot to complete our project work. His guidance proved to be the most valuable to overcome all the hurdles in the fulfillment of this project work.

We also express our sincere thanks to **Dr. S. R. Pawaskar,** Principal of D. Y. Patil Technical Campus, Faculty of Engineering & Faculty of Management, Talsande, (Polytechnic). Last but not least, this acknowledgment would be incomplete without rendering our sincere gratitude to all those who have helped we in the completion of Sem VI Report. Finally, we express our deep since of gratitude to our parents & family members, who are the chief source of our inspiration.

Sincerely,

Mr. Atharv Milind Kolekar

Mr. Rajvardhan Vijay Yadav

Mr. Shreyash Rajendra Mulik

Mr. Sanskar Mandar Kulkarni

INDEX

List of Tables

List of Figures

ABSTRACT

A healthy road network plays a significant role in the socio-economic development of any country. It has been observed that real-time road condition monitoring can drastically reduce road and vehicle maintenance expenses. Everyday 1374 road traffic accidents (RTAs) and 400 deaths take place in India. The number of deaths in RTAs would increase to 662 persons per day in 2030 and will not begin to decline until 2042, which is a serious public health concern. There are various methods to analyse road health, but most are either expensive, costly, time-consuming, labour-intensive, or imprecise. In this user can send their live location i.e., longitude and latitude to the selected municipal with photo and feedback. Then user can check last feedback. It concludes that user can directly send their feedback to municipal directly by this system.

The proposed system allows users to actively participate in the maintenance and improvement of road infrastructure by providing valuable feedback to municipal authorities. By simply sending their live location along with photos and comments, individuals contribute to a comprehensive database of road conditions and safety hazards. Moreover, the transparency and accessibility of this feedback mechanism enable users to track the status of their submissions and view the latest updates from municipal authorities. This direct channel of communication fosters accountability and responsiveness, as it facilitates prompt action on reported issues and promotes community engagement in road safety initiatives.

Keywords: Road Health, rht, Web Application, Database.

INTRODUCTION

"Road Health Tracker" is a pioneering online platform designed to tackle the pervasive issues surrounding road hazards, pits, and dangerous conditions that plague communities. As the brainchild of a dedicated team committed to enhancing road safety and infrastructure, this website serves as a vital bridge between concerned citizens and local municipal authorities. With a user-centric approach, Road Health Tracker empowers individuals to proactively report road deficiencies and participate in the improvement of their surroundings.

At its core, Road Health Tracker operates through two distinct models: the user and the municipal authority. The user model offers a seamless experience, allowing individuals to log in and access the platform's services effortlessly. Within the user interface, a dedicated complaint form stands ready, beckoning users to provide essential details such as their name, phone number, location, along with accompanying images and comments regarding road pits and hazards they've encountered. This streamlined process ensures that submitting a complaint is intuitive and accessible to all, fostering widespread community engagement.

Upon submission, user complaints undergo automatic processing and are swiftly uploaded into the platform's secure database, where they await review and action by municipal authorities. Through the municipal panel, designated officials and workers gain access to a comprehensive overview of all received complaints, enabling them to prioritize and address issues in a timely manner. This collaborative framework cultivates transparency and accountability, fostering trust between citizens and their local government.

The seamless integration of user feedback and municipal response mechanisms is a hallmark of Road Health Tracker's functionality. As municipal workers navigate through the platform, they can assess each complaint thoroughly, evaluate its severity, and devise tailored solutions to mitigate the identified hazards. Whether it entails road repairs, hazard signage installations, or other safety measures, every action taken resonates with a shared commitment to enhancing road health and fostering safer communities.

Crucially, Road Health Tracker places a premium on communication and feedback loops, ensuring that users remain informed and empowered throughout the process. Upon approval and initiation of corrective measures, users receive timely notifications, affirming that their

concerns have been acknowledged and action is underway. This proactive approach not only instils confidence in the efficacy of the platform but also encourages continued participation and advocacy for road safety initiatives.

Beyond its immediate impact on road maintenance and hazard mitigation, Road Health Tracker serves as a catalyst for broader systemic change. By leveraging technology to democratize the reporting and resolution of road-related issues, the platform empowers citizens to actively shape the quality of their urban environments. Through collective action and advocacy, communities can amplify their voices and hold authorities accountable for ensuring safe and accessible roadways for all.

Moreover, Road Health Tracker's data-driven approach holds immense potential for informing policy decisions and resource allocation at the municipal level. By aggregating and analysing complaint data over time, authorities can identify recurring hotspots, prioritize infrastructure investments, and implement proactive maintenance strategies. This data-driven feedback loop not only enhances operational efficiency but also fosters a culture of continuous improvement and responsiveness to community needs.

In essence, Road Health Tracker embodies the ethos of civic engagement and collaborative problem-solving in the digital age. By harnessing the collective intelligence and agency of citizens, coupled with the institutional capacity of local governments, the platform stands as a beacon of innovation and empowerment in the realm of public service delivery. As we journey forward, Road Health Tracker remains steadfast in its commitment to fostering safer roads, stronger communities, and a more inclusive urban landscape for generations to come.

MOTIVATION

The motivation behind the creation of "Road Health Tracker" stems from a pressing need to address the alarmingly high accident rates prevalent across India's roadways. India's roads have long been characterized by hazardous conditions, including potholes, uneven surfaces, inadequate signage, and a lack of proper maintenance. These factors contribute significantly to the frequency and severity of accidents, posing a grave threat to the safety and well-being of peoples. Also, as per observation accidents can impact on social diversity, economics and vehicle maintenance. So, because we cannot raise complaint against directly to municipal so due to this, we can send complaint with photo, location. Our motto is to provide information about road to needy people (user) and also to municipal.

Fig.1: Road Pits

According to statistics, India witnesses thousands of road-related fatalities each year, with countless others sustaining injuries of varying degrees. The toll exacted by these accidents extends beyond mere numbers, affecting families, livelihoods, and communities at large. Such incidents not only result in human tragedy but also impose substantial economic burdens on the nation's healthcare system and infrastructure resources.

Against this backdrop of adversity, "Road Health Tracker" emerges as a beacon of hope and proactive intervention. By leveraging technology and community engagement, the platform seeks to systematically address the root causes of road hazards and mitigate their adverse effects on public safety. Through its user-friendly interface and streamlined complaint submission process, "Road Health Tracker" empowers citizens to voice their concerns and mobilize collective action toward tangible solutions.

Ultimately, the motivation behind "Road Health Tracker" transcends mere data points and statistics. It is rooted in a collective desire to safeguard lives, preserve dignity, and uphold the fundamental right to safe mobility for all. As India embarks on its journey toward progress and development, ensuring the integrity of its road infrastructure stands as a non-negotiable imperative. Through sustained advocacy, innovation, and civic participation, "Road Health Tracker" seeks to catalyse a paradigm shift in road safety practices and pave the way toward a brighter, safer future for generations to come.

Fig. 2: Road Accidents

Fig. 3: Terrible Condition Due to Road Accident

LITERATURE SURVEY

"**Road Accidents in India 2021**" published by Ministry of Road Transport and Highways Government of India (Research Wing). In the Section-2 of journal it describes the number of accidents happening as per roads category. Totally, 17% death rate is increased because of the accidents in India. In the year 2021 4,12,432 accidents are happened in India from those 1,53,972 peoples are killed. As per record, 45.4% accidents are happened on the other roads i.e., undeveloped and has under the municipal. Also as compared to last year of 2021 in the year 2021 the ratio of accidents on others roads are increased [1].

"**Low-Cost Road Health Monitoring System: A Case of Flexible Pavements**" published on 14 September 2021. An automized sensor-based system is developed to assist the road sections for repair and rehabilitation. The proposed system is mounted in a vehicle and the data have been collected for a more than 1000 km road network. The data have been processed using SPSS, and it shows that the proposed system is adequate for detecting the road quality. It is concluded that the proposed system can identify the vulnerable sections to add to the pavement maintenance plan. It requires camera mounted on vehicle to scan the quality of road. This system provide accuracy of 80% [2].

"**Spatio-temporal analysis of road traffic accidents in Indian large cities.**" Published on 14 January 2019. Present paper attempts to analyse the trends and patterns of RTAs in India during the year 2000–2015, and the patterns in the year 2015 in cities with population size 2 million or more. The exponential growth rate curve of the number of RTAs shows upward trend during 2000–2015 in India. The spatial analysis of severity shows that there is no direct link between the number of accidents and the severity. The city-wise analysis of RTAs by the vehicle involved, age of the persons, cite, and timing of accidents shows a varying pattern across the cities. In this the analysis is done with major cities such as Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Jaipur, Kanpur, Kolkata, Lucknow, Mumbai, Nagpur, Pune, and Surat [3].

"**Accident risk of road and weather conditions on different road types**" published on 29 October 2018. This study was designed to investigate the relative accident risk of different road weather conditions and combinations of conditions. This paper includes the speed of the traffic and thus, the paper examines accident risk in relation to the time spent on the road segment in certain conditions. The hour-level weather and road condition data per segment were obtained from nearby road weather stations. The relative accident risks were increased for poor road weather conditions; however, they were highest for icy rain and slippery and very slippery road conditions. The objective of this study was to investigate the frequency and relative accident risk of different weather and road conditions from the drivers' point of view, both overall and differentiated by road type and accident type [4].

"**The identification of patterns of interurban road accident frequency and severity using road geometry and traffic indicators**" published on April 2016. This paper is focused on the effect of road geometry, and other accident-causing conditions, on the binary response variable road accident severity. The data is collected from two interurban routes in Spain (Madrid-Irún and Barcelona-Almeria) and covers a 3-year period (2010-2012). The road geometry design is found to have a significant impact on the different accident types. Among the most important variables the main lane widths, superelevation and slope were found to affect the severity rate for all accident types. narrow main lane, shoulder lane, median lane and slow lane, might increase the accident severity [5].

"**Road Funds: A Case Study of Sustainable Road Maintenance in India**" published in 2005. India is confidently meeting the challenge of upgrading and expanding the existing road network and its maintenance. In this journal describes study about four states world network in India such that Kerala, Madhya Pradesh, Karnataka and Uttar Pradesh. It states fund given to those states as per records for maintenance of road per year officially. Also describes why roads health are decreasing like oil transportation via road. Each state given a fund from central government to keep road quality high as well as state government provide their fund to maintain a road. And also provide extra fund to increase road network in rural area [6].

ANALYSIS

Table 1: Accidents, Persons killed and Injuries by Road Feature

Road feature	Number of accidents			Persons killed			Persons injured		
	2020	2021	%age change	2020	2021	%age change	2020	2021	%age change
Straight road	2,37,943	2,78,218	16.9	85,032	1,02,623	20.7	2,26,651	2,59,402	14.4
Curved Road	47,772`	49,581	3.8	16,746	19,120	14.2	48,213	48,888	1.4
Bridge	12,836	12,709	-1.0	5,049	5,337	5.7	12,211	11,546	-5.4
Culvert	6,724	6,663	-0.9	2,762	2,960	7.2	6,017	6,029	0.2
Potholes	3,564	3,625	1.7	1,471	1,481	0.7	3,064	3,103	1.3
Steep grade	4,244	3,967	-6.5	1,604	1,635	1.9	3,977	3,398	-14.6
Ongoing road works/Under construction	9,173	9,075	-1.1	3,894	4,014	3.1	8,005	7,539	-5.8
Others	43,882	48,594	10.7	15,157	16,802	10.9	40,141	44,141	11.0
Total	**3,66,138**	**4,12,432**	**12.6**	**1,31,714**	**1,53,972**	**16.9**	**3,48,279**	**3,84,448**	**10.4**

Table 2: Road Accidents by Weather Condition (2020-21)

Road feature	Number of accidents			Persons killed			Persons injured		
	2020	2021	%age change	2020	2021	%age change	2020	2021	%age change
Sunny / clear	2,61,046	2,99,305	14.7	88,239	1,05,805	19.9	2,53,421	2,84,176	12.1
Rainy	36,161	36,432	0.7	13,283	14,455	8.8	34,552	33,416	-3.3
Foggy & misty	26,541	28,934	9.0	12,084	13,372	10.7	23,111	25,360	9.7
Hail/sleet	4,752	3,911	-17.7	2,095	1,872	-10.6	4,074	3,296	-19.1
Others	37,638	43,850	16.5	16,013	18,468	15.3	33,121	38,200	15.3
Total	**3,66,138**	**4,12,432**	**12.6**	**1,31,714**	**1,53,972**	**16.9**	**3,48,279**	**3,84,448**	**104**

Table 3: Accidents by Type of Road Junction at the All India (2020-21)

Road feature	Number of accidents			Persons killed			Persons injured		
	2020	2021	%age change	2020	2021	%age change	2020	2021	%age change
T- Junction	36,471	37,020	1.5	11,091	11,783	6.2	33,735	34,092	1.1
Share in Total	10.0	9.0		8.4	7.7		9.7	8.9	
Y- Junction	16,438	15,527	-5.5	5,501	5,384	-2.1	14,729	13,671	-7.2
Share in Total	4.5	3.8		4.2	3.5		4.2	3.6	
Four arm Junction	17,611	18,703	6.2	5,368	5,739	6.9	15,206	16,216	6.6
Share in Total	4.8	4.5		4.1	3.7		4.4	4.2	
Staggered Junction	18,713	14,111	-24.6	6,204	5,160	-16.8	16,539	12,678	-23.3
Share in Total	5.1	3.2		4.7	3.0		4.7	3.2	
Round about Junction	11,161	13,210	18.4	3,990	4,603	15.4	10,083	12,147	20.5
Share in Total	3.0	3.2		3.0	3.0		2.9	3.2	
Others	2,65,744	3,13,861	18.1	99,560	1,21,303	21.8	2,57,987	2,95,644	14.6
Share in Total	72.6	76.1		75.6	78.8		74.1	76.9	
Total	**3,66,138**	**4,12,432**	**12.6**	**1,31,714**	**1,53,972**	**16.9**	**3,48,279**	**3,84,448**	**104**

NEED OF WORK

1. **Enhanced Road Safety:** The need for the "Road Health Tracker" website stems from the critical necessity to enhance road safety across communities by addressing road pits, hazards, and dangerous conditions promptly.
2. **Citizen Empowerment:** The platform aims to empower citizens by providing them with a user-friendly interface to report road-related issues directly to local municipal authorities.
3. **Transparency and Accountability:** There is a pressing need to establish transparency and accountability in the process of addressing road-related complaints. The website facilitates this by ensuring that complaints are visible to both users and municipal workers.
4. **Streamlined Complaint Submission:** The need for a streamlined process for citizens to submit complaints about road pits and hazards arises from the cumbersome and often inefficient traditional methods of reporting such issues.
5. **Efficient Database Management:** The website addresses the need for efficient database management by automatically submitting and uploading user complaints into a centralized database for easy access and review by municipal authorities.
6. **Timely Action and Response:** There is a significant need for timely action and response from municipal authorities to address reported road issues and ensure the safety of road users.
7. **Reduction of Accidents and Injuries:** The primary goal of the "Road Health Tracker" website is to contribute to the reduction of accidents and injuries caused by poor road conditions through proactive reporting and resolution of road-related issues.
8. **Prevention of Infrastructure Damage:** Addressing Road pits and hazards in a timely manner helps prevent further damage to the infrastructure and reduces the overall cost of repairs and maintenance.
9. **Promotion of Civic Engagement:** The website promotes civic engagement by encouraging citizens to actively participate in the improvement of their local road infrastructure and environment.
10. **Collaborative Approach:** Lastly, there is a need for a collaborative approach involving citizens, local municipal authorities, and other stakeholders to address road-related issues effectively and sustainably. "Road Health Tracker" facilitates this collaboration by serving as a bridge between citizens and authorities.

PROBLEM STATEMENT

The Road Health Tracker project aims to address the pervasive issue of road pits, hazards, and dangerous conditions by establishing a digital platform that serves as a liaison between citizens and local municipal authorities. By enabling users to report road-related concerns and facilitating municipal action, the project endeavors to enhance road safety and infrastructure maintenance within communities.

OBJECTIVES

- Develop a user-friendly platform that facilitates the seamless submission of complaints regarding road conditions.
- Implement robust data management systems to ensure the accurate recording and processing of user complaints.
- Enable efficient communication and collaboration between users and municipal authorities for timely resolution of reported issues.
- Promote community engagement and awareness to encourage proactive participation in maintaining road safety and infrastructure integrity.
- Continuously improve the platform based on user feedback and technological advancements to enhance its effectiveness and scalability.

PROPOSED WORK

User Side Proposed Workflow:

Step1: User Registration/Login:

- Users visit the "Road Health Tracker" website and register an account or log in if they already have one.

Step2: Accessing Complaint Form:

- Users fill out the complaint form, providing basic information such as name, phone number, and location.
- They can upload pictures of road pits and add comments to describe the issue in detail.

Step3: Submitting Complaint:

- After filling out the form, users submit the complaint.
- The complaint is automatically uploaded to the database.

Step4: Notification of Complaint Submission:

- Once the complaint is successfully submitted, users receive a notification confirming the receipt of their complaint.

Step5: Notification of Complaint Submission:

- Once the complaint is successfully submitted, users receive a notification confirming the receipt of their complaint.

Step6: Monitoring Complaint Status:

- Users can log in to their account to monitor the status of their complaint.
- They receive updates on the progress of their complaint as it is reviewed and addressed by the municipal authorities.

Fig. 4: User Workflow

Municipal Side Proposed Workflow:

Step1: Municipal Worker Login:

- Municipal workers log in to the "Road Health Tracker" website using their credentials.

Step2: Accessing Complaint Dashboard:

- Upon logging in, municipal workers access the complaint dashboard where all received complaints are listed.

Step3: Reviewing Complaints:

- Municipal workers review each complaint submitted by users.
- They assess the severity of the road pits and hazardous conditions reported by users.

Step4: Taking Action:

- Municipal workers take specific actions based on the nature and severity of each complaint.
- This may involve scheduling repairs, maintenance, or other necessary interventions to address the reported issues.

Step5: Updating Complaint Status:

- After taking action, municipal workers update the status of each complaint in the system.
- Users are notified of the progress and resolution of their complaints.

Step6: Communication with Users:

- Municipal workers may communicate with users if additional information or clarification is needed regarding their complaints.
- They ensure transparency and keep users informed throughout the process of addressing reported road hazards.

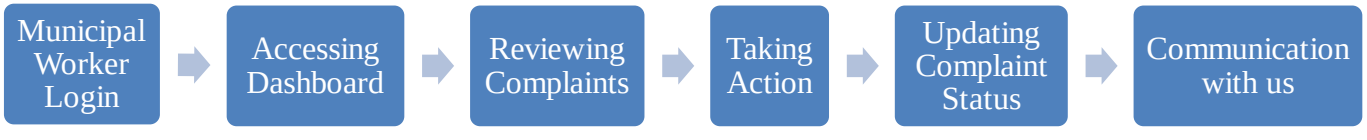

Fig. 5: Municipal Workflow

SYSTEM ARCHITECTURE

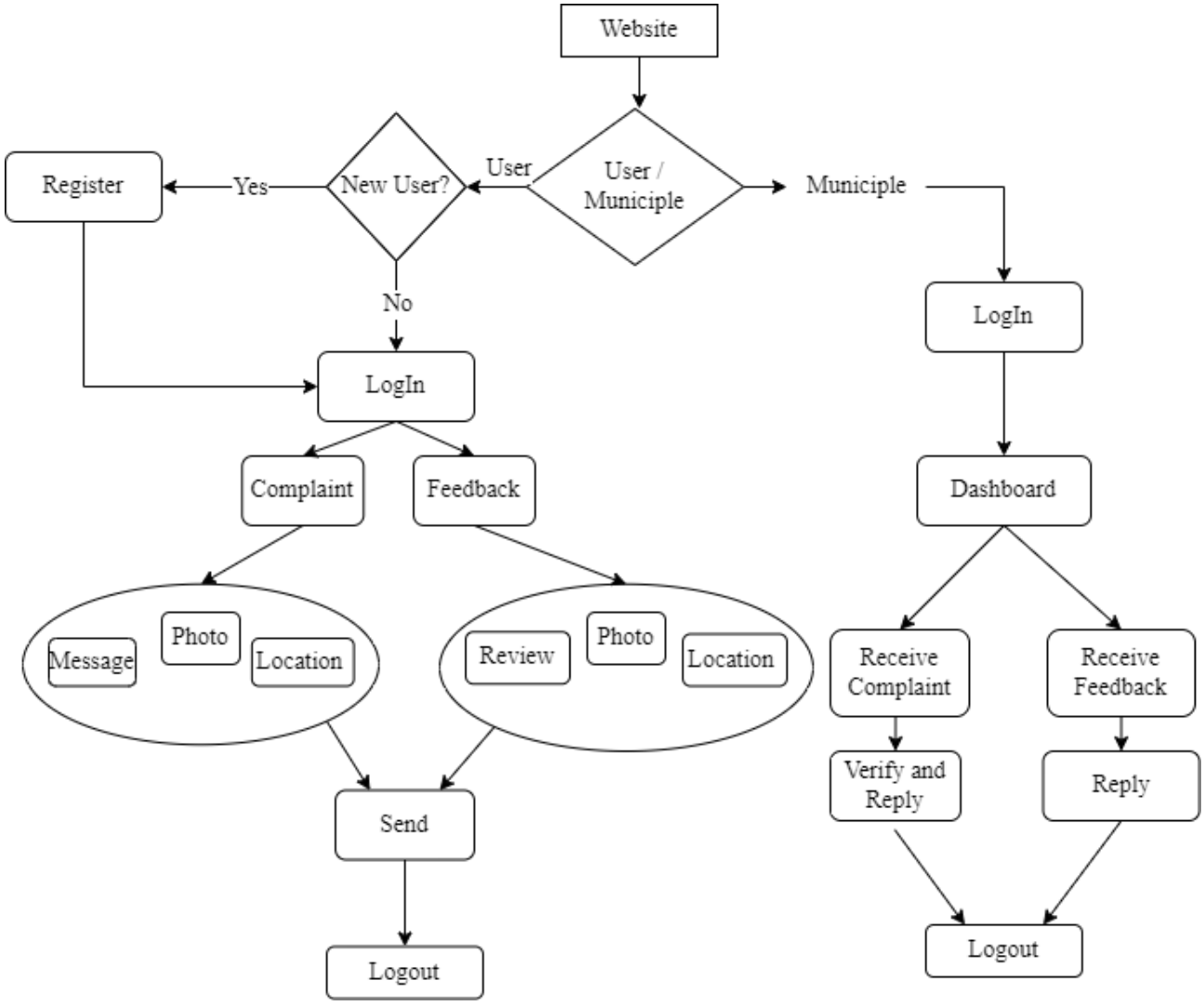

Fig. 6: Proposed System Architecture

METHODOLOGY

The "Road Health Tracker" website emerges as a pivotal platform in addressing the pervasive concerns surrounding road pits, hazards, and dangerous conditions prevalent in various localities. It stands as a proactive interface, fostering seamless communication between citizens and local municipal authorities. With a dual-model architecture, comprising user and municipal interfaces, the website streamlines the process of reporting road-related issues and orchestrating prompt resolutions.

In the user-centric model, individuals engage with the platform by logging in and accessing the intuitive complaint form within the services section. Here, users furnish essential details, including personal information such as name, contact number, and precise location, alongside pertinent descriptions and photographic evidence of road pits and hazards. Once the form is meticulously completed, users effortlessly submit their complaints, which seamlessly traverse into the website's database for immediate processing.

Transitioning to the municipal panel, designated municipal workers undertake the responsibility of meticulously reviewing all incoming complaints from users. Within this interface, comprehensive assessments are conducted, gauging the severity and urgency of reported road conditions. Empowered with insights garnered from user submissions, municipal workers meticulously deliberate on the necessary actions imperative for rectification.

Upon meticulous evaluation and approval of user complaints, the system orchestrates a pivotal juncture where users are promptly notified of the successful receipt and subsequent action taken concerning their reported concerns. This pivotal communication loop ensures transparency and in stills confidence among users, fostering a sense of collaboration and efficacy in addressing community-wide road health issues.

Integral to the methodology of the "Road Health Tracker" website is its unwavering commitment to fostering civic engagement and accountability. By seamlessly integrating user-generated reports with municipal workflows, the platform catalyses actionable responses, thereby engendering safer roadways and fortified community bonds. In essence, the methodology encapsulates a symbiotic relationship between citizens and local governance, united in their endeavour to mitigate road hazards and fortify the fabric of public safety.

Module 1: User

1. Register: User can register using their personal information.
2. Login: User can login with username and password.
3. Profile:
    a. Personal Details.
    b. Form suggestions
4. History
    a. Sent messages.
5. Extra Activities about roads.
6. Extra Information about road network

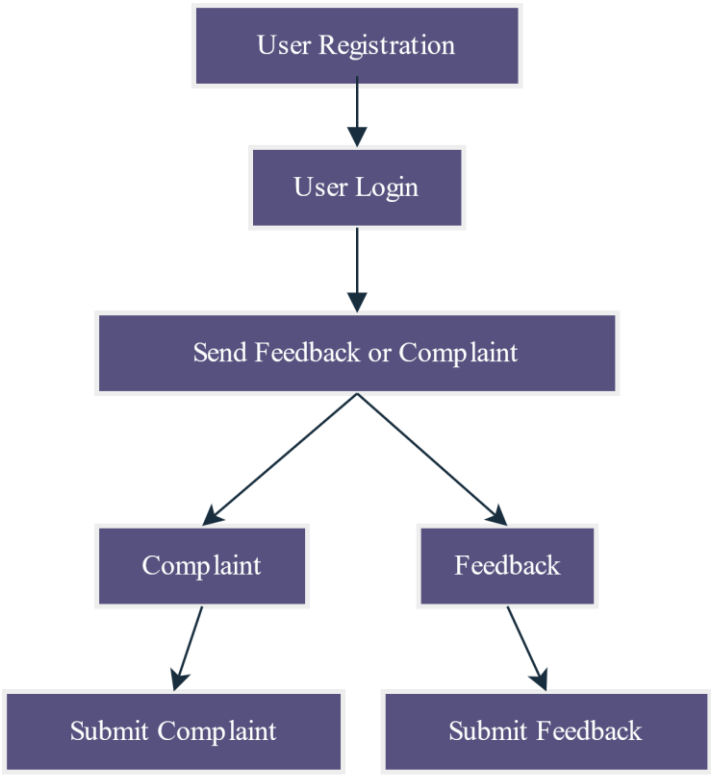

Fig. 7: Module 1- User

Module 2: Municipal

1. Login: Municipal can login with their username and password.
2. Dashboard:
    a. Received Complaints
    b. Received Feedbacks
3. History
4. Road Detail Page

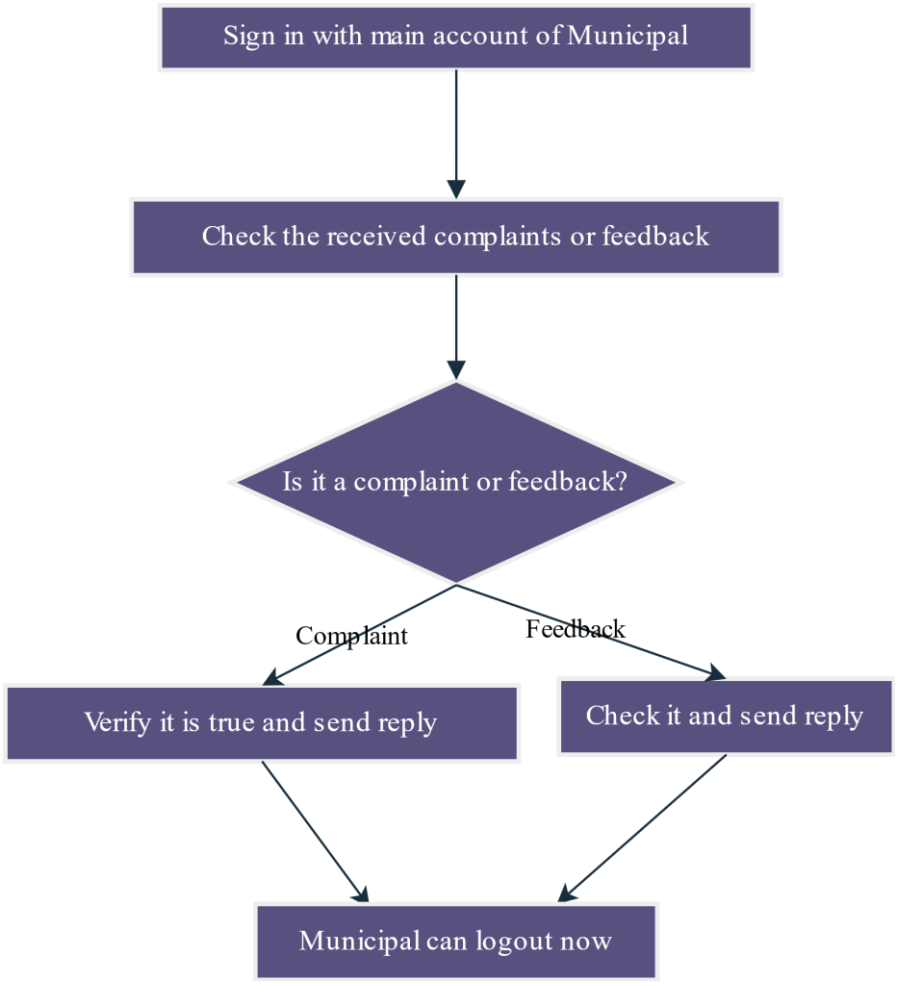

Fig. 8: Module 2- Municipal

Module 1: User

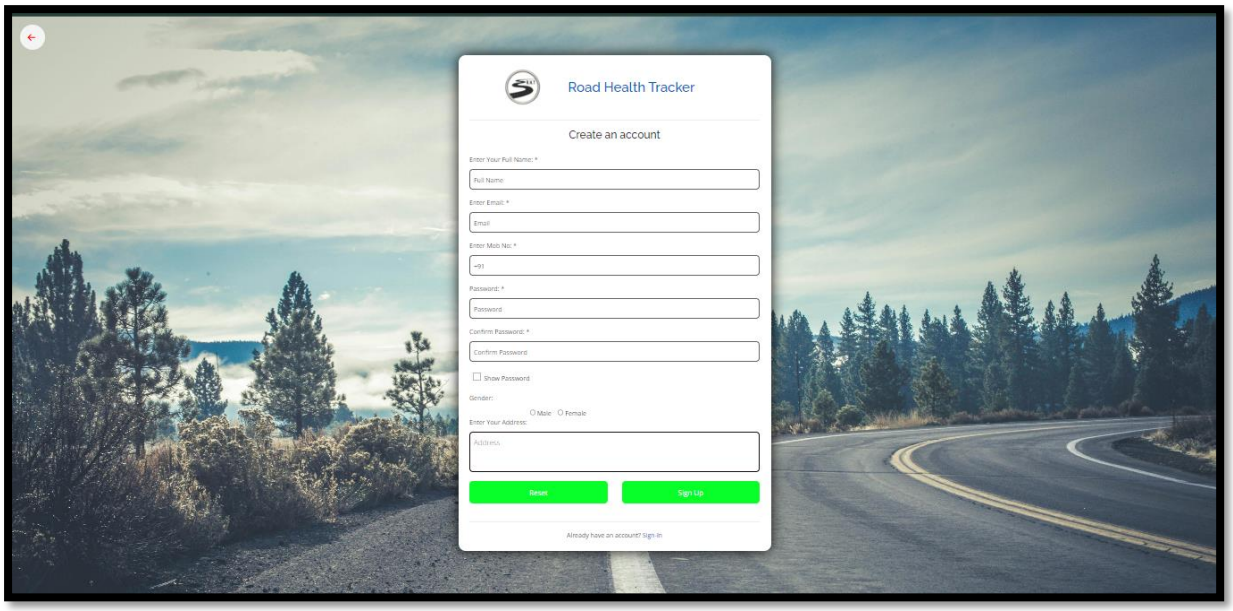

Fig. 9: Sign-up

Signing up on our website is quick and easy. Simply navigate to the sign-up page and provide your basic information such as name, email, and password, Gender and Address. Click the "Sign Up" button to create your account instantly. Once registered, you'll gain access to all the features and benefits of our platform hao offer. After user get registered it will get email.

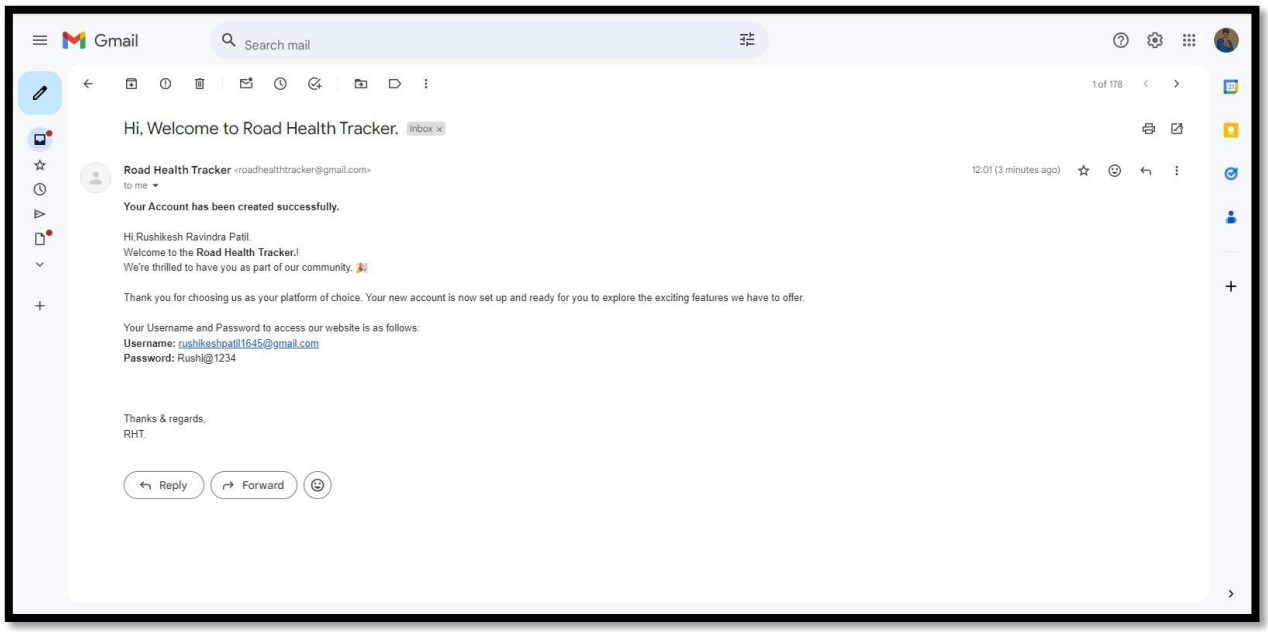

Fig. 10: Confirmed Mail

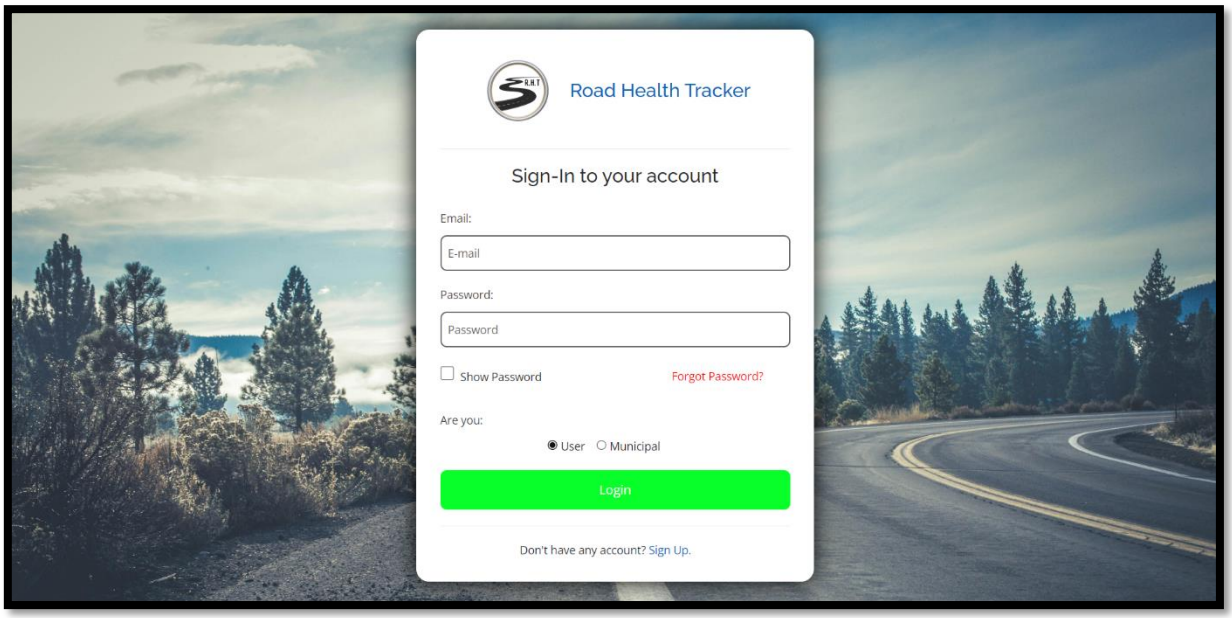

Fig. 11: Sign-In

Users typically navigate to the designated sign-in page and locate the sign-in or sign-up option. Upon clicking, they are prompted to enter their username as email address and password into the designated fields. After inputting the required information, users finalize the process by selecting the "Sign In" or "Log In" button, gaining access to their account and its associated features. It's important to ensure the confidentiality of login credentials and to use secure sign-in methods to protect personal information.

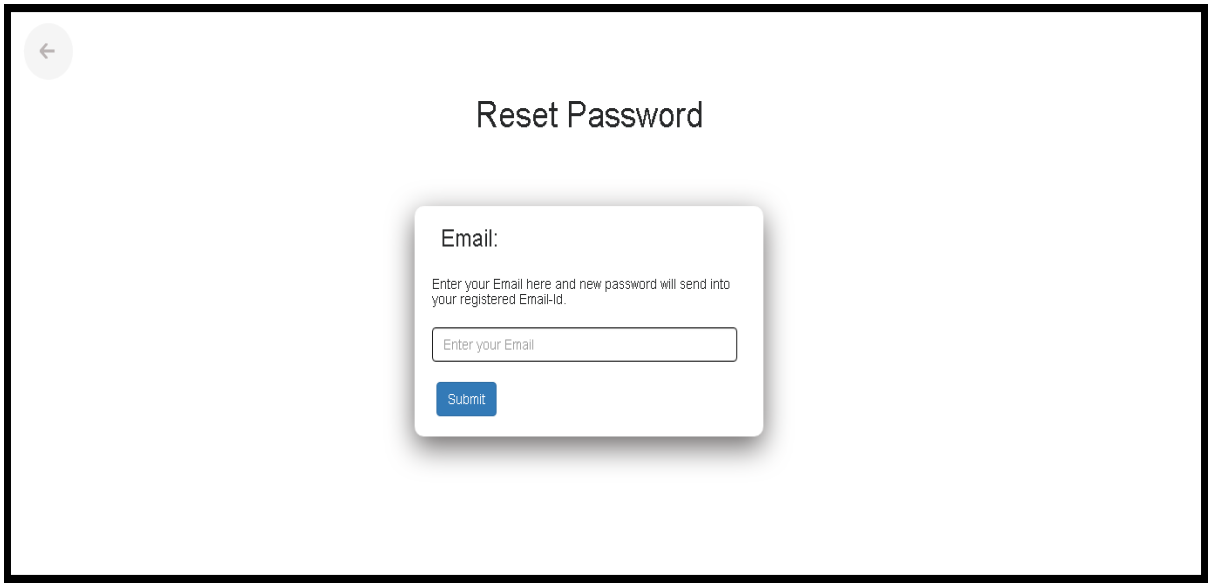

Fig. 12: Forgot Password

If user forgot their password of the account in RHT then he can create a new password for this. User have to enter their registered Email Id with RHT then if the Email Id is correct as registered with RHT then it automatically generated password and send to your registered Email Id.

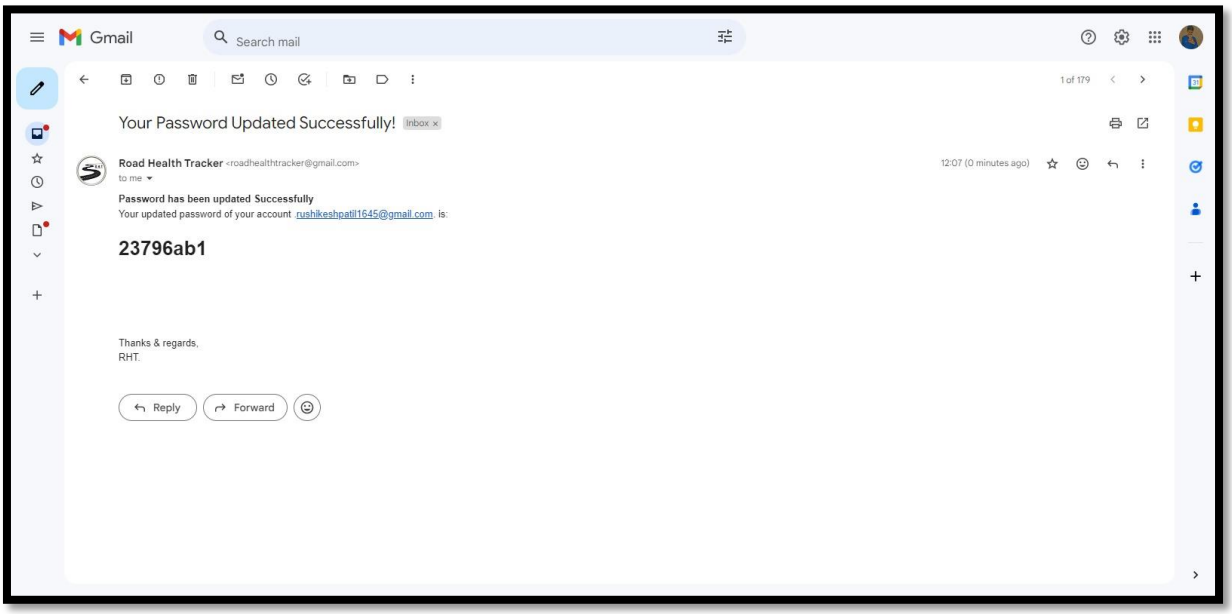

Fig. 13: Forgot Password Mail

Fig. 14: Home-Page

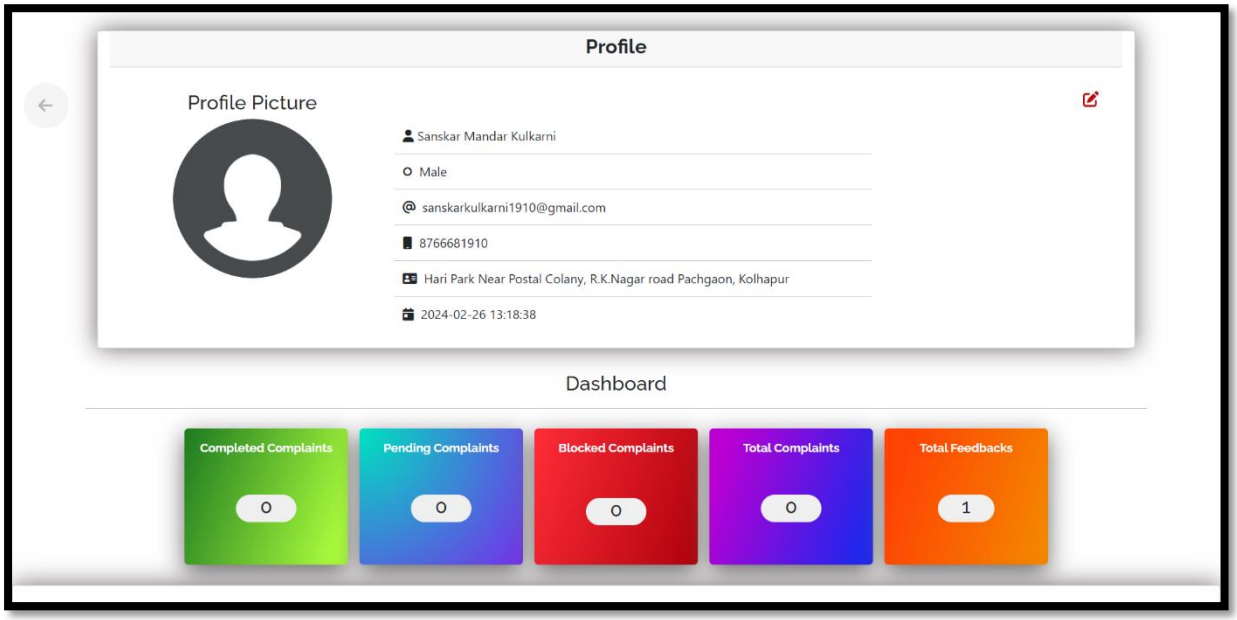

Fig. 15: Profile Page

There is two pages of profile, and Home-page of Road Health Tracker Website. In Home page Mentioned Some Sections of services for Quick Shift like home, profile, About, Services and Help-desk. In profile page, some Basic information of our users is shown. And One dashboard which show the Information about users Completed, Pending, Blocked and Total Count of Complaints. And Also Shows the Count of Feedback of our website.

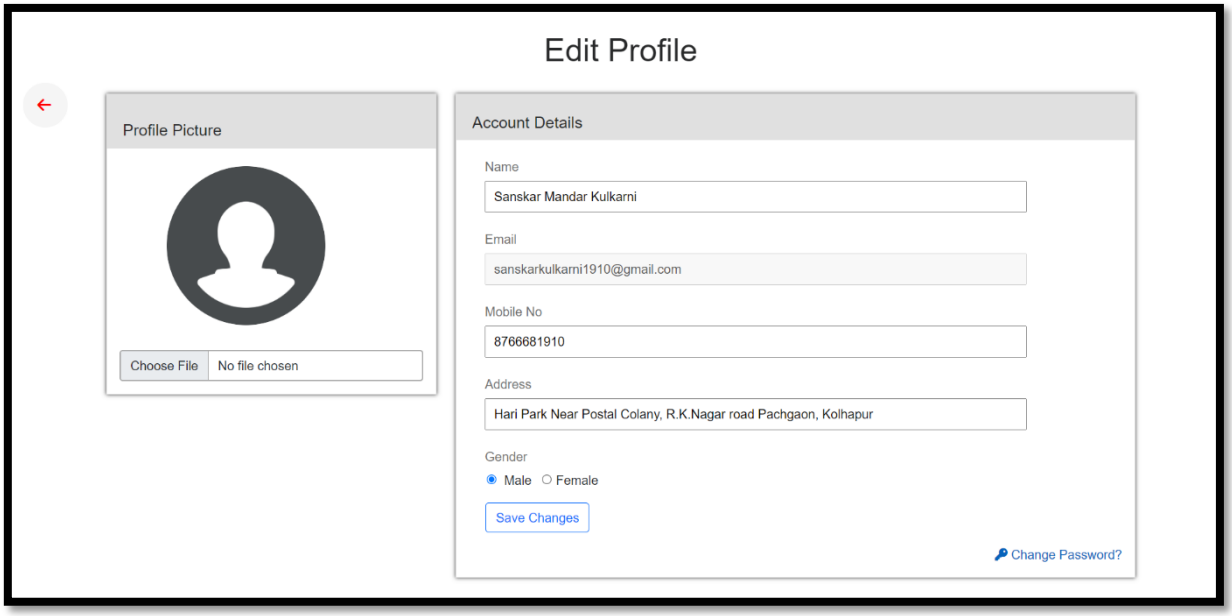

Fig. 16: Edit profile

When the user entered in website then see his profile. If the user should change or update his information then it clicks on Edit profile icon and change or update his information like Name, Mobile No, Profile image, Address and Gender also.

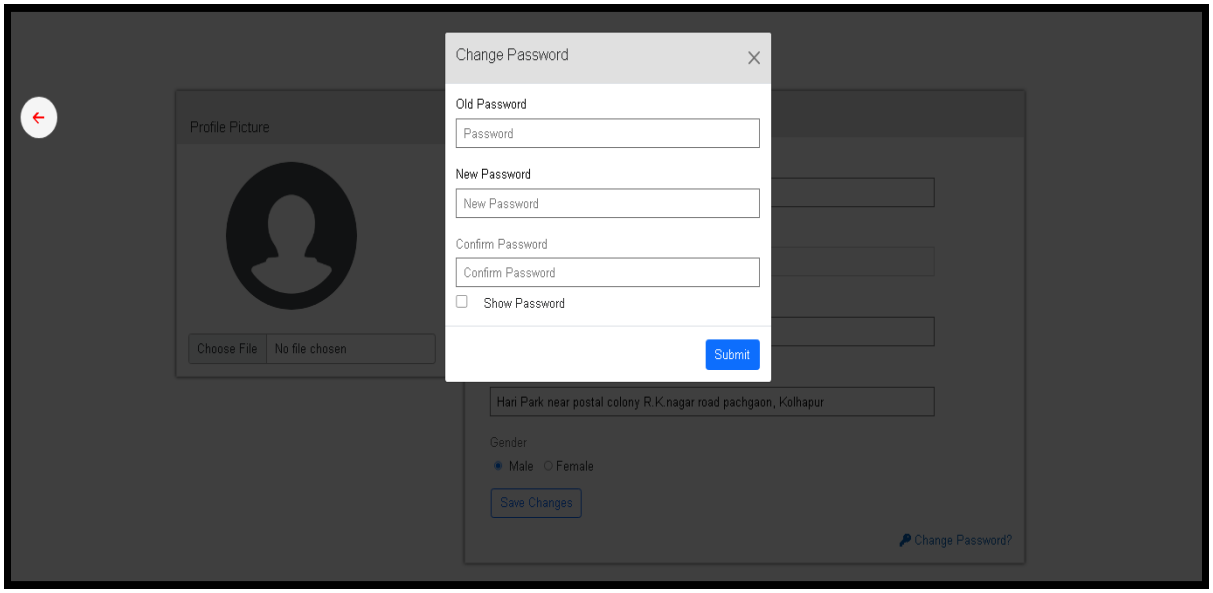

Fig. 17: Change Password

If the user should change or update the information then it clicks on Edit profile page and in this profile page at the bottom-right change password page if the user changes the password of Registered Email, then it clicks on change password button but if the old password is right then it will allow to change the password but if the old password is false then it don't allow to change the password.

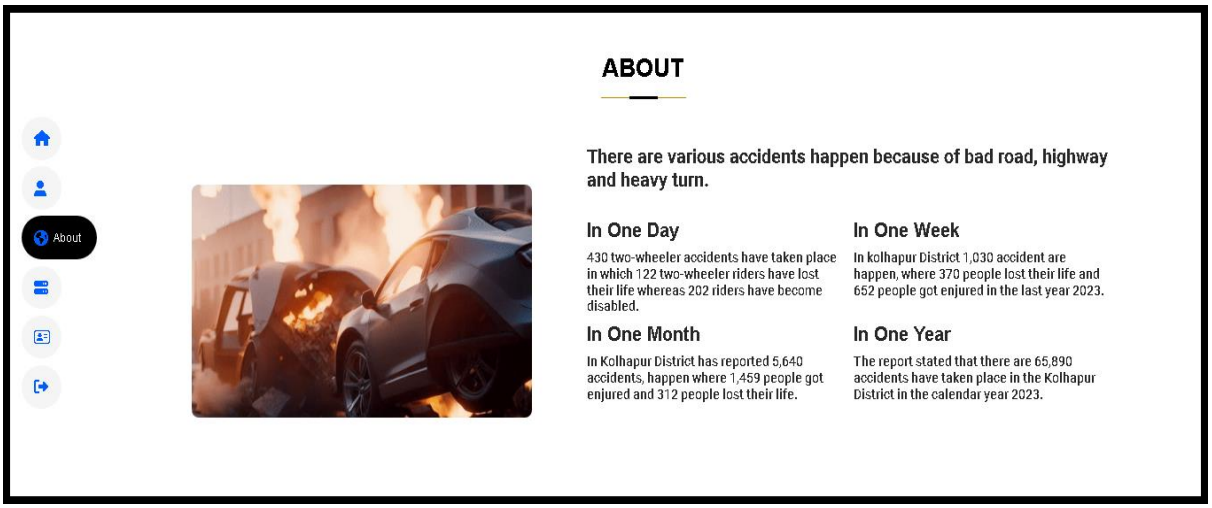

Fig. 18: About

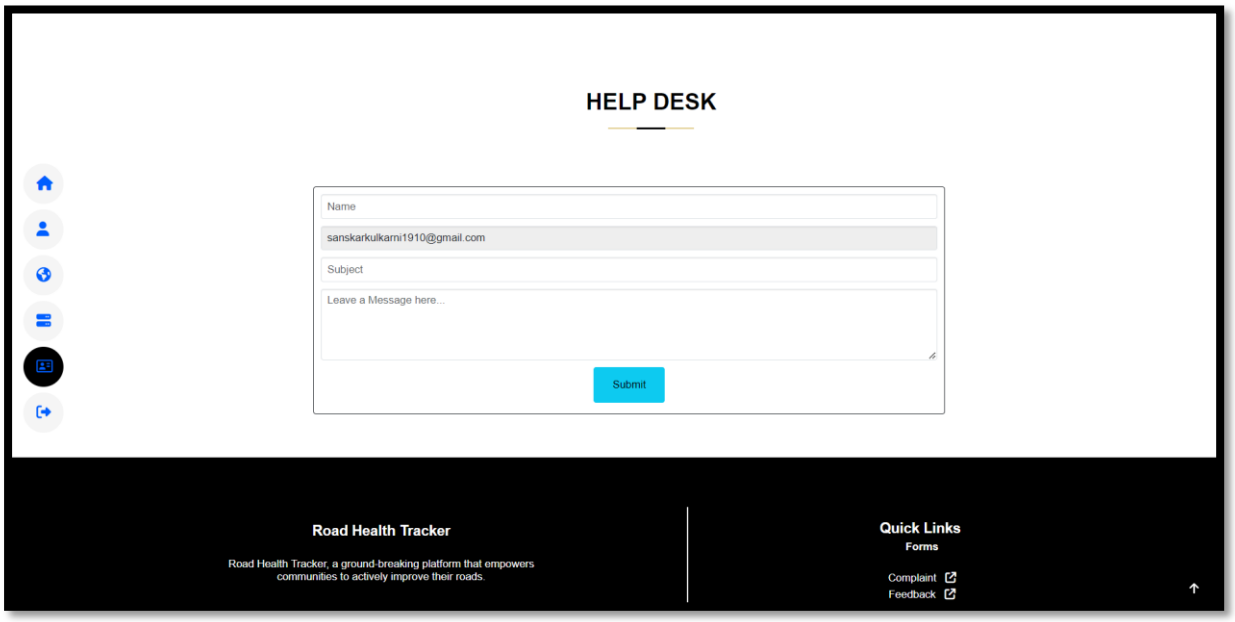

Fig. 19: Help Desk

Here is two pages of About and Help Desk, of our Road Health Tracker Website. In About Section We Shown the Information of 'Accidents happens causes of bad roads and heavy turn' regarding to One Day, one Week, one month and in one year. In help desk Sections If users have any Query Related to our Website or our Development Team then User have to fulfil the respected form to contact us.

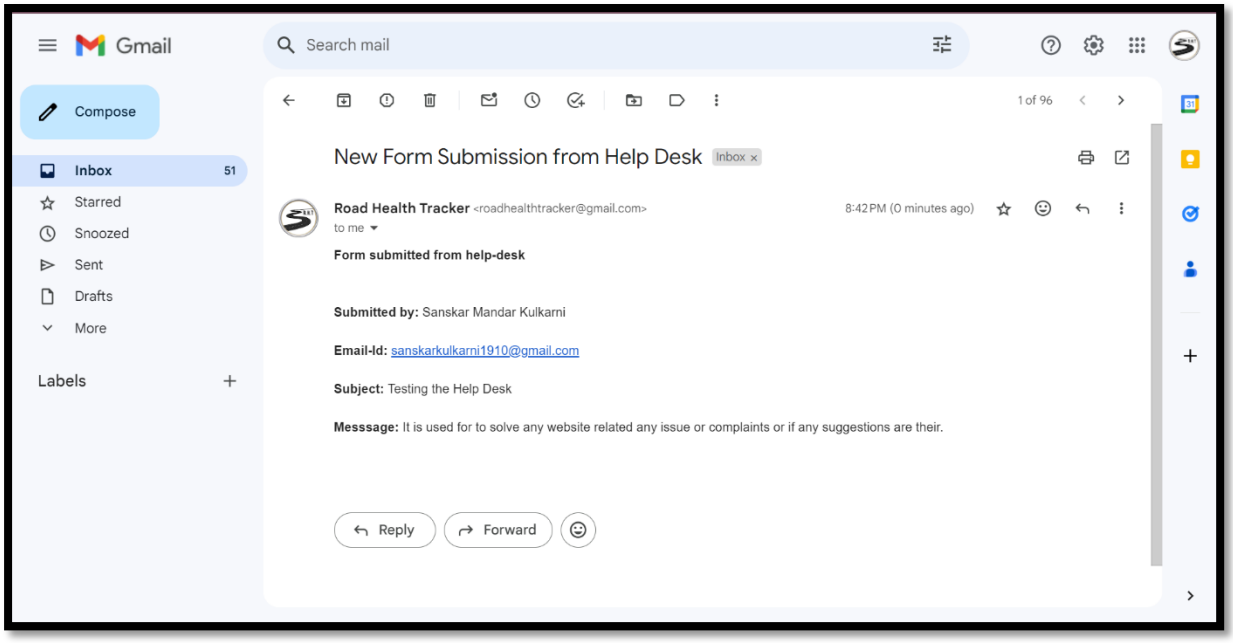

Fig. 20: Help Desk Mail

As shown in above Fig. 20 If user will fill form inside the Help-Desk then sent to Development team then it will display the name of the user and email id and their message will display on our email address.

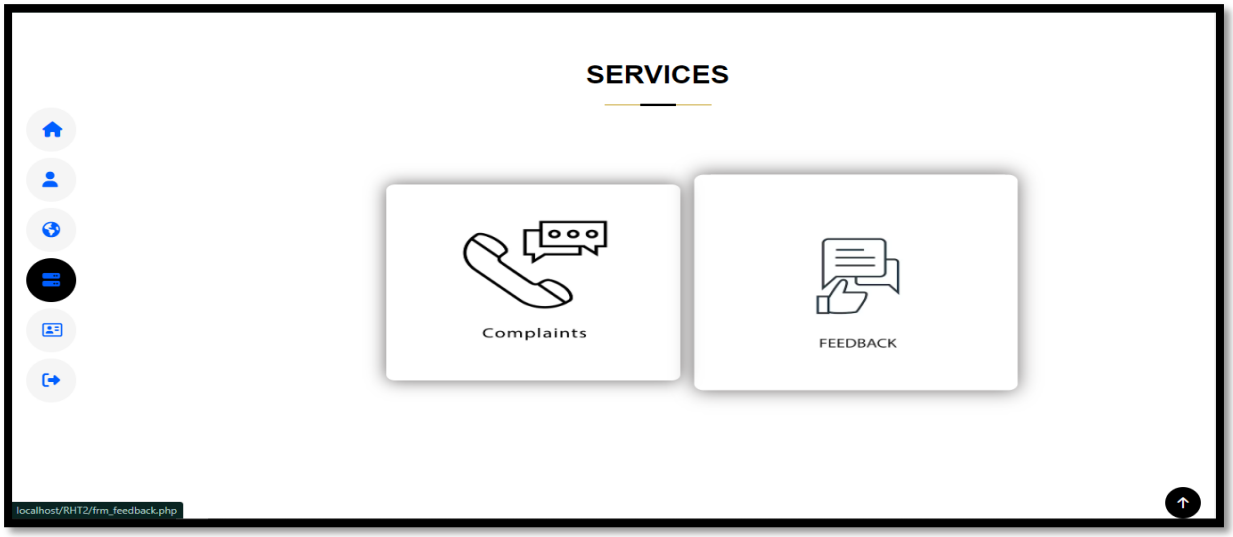

Fig. 21: Services > Feedback

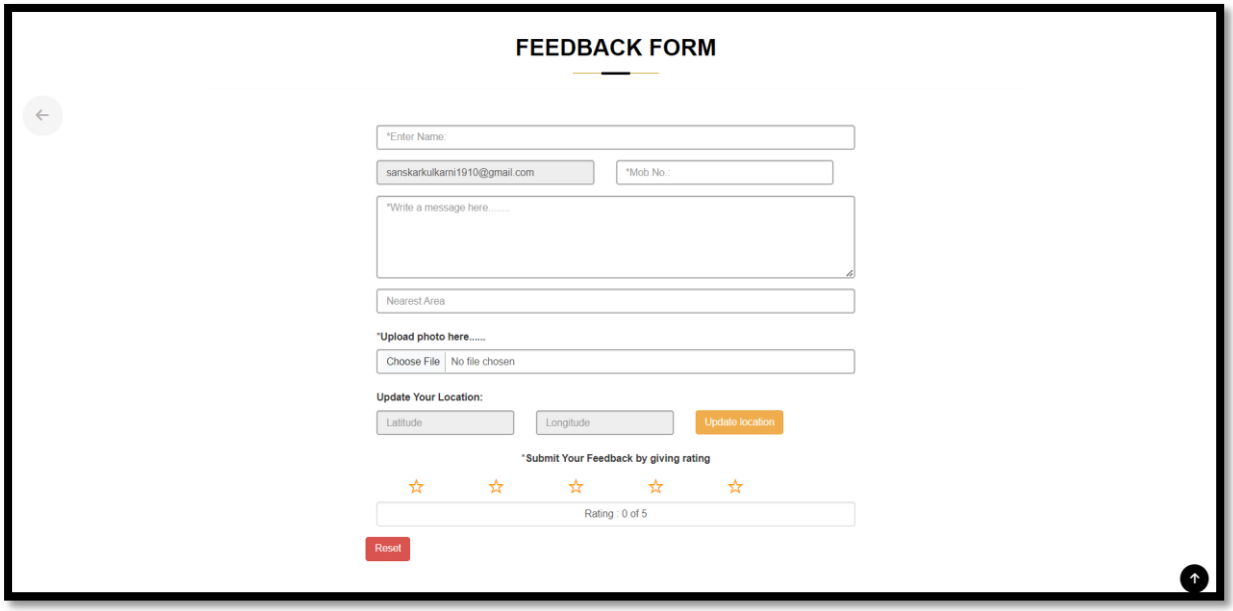

Fig. 22: Feedback Form

In our Website there is one section named SERVICES where are the two options for submitting Complaints and Sending Feedback to us. When the user clicks on Services > Feedback option they will redirect to Feedback form. Where are some Rating options are visible to Rate our website.

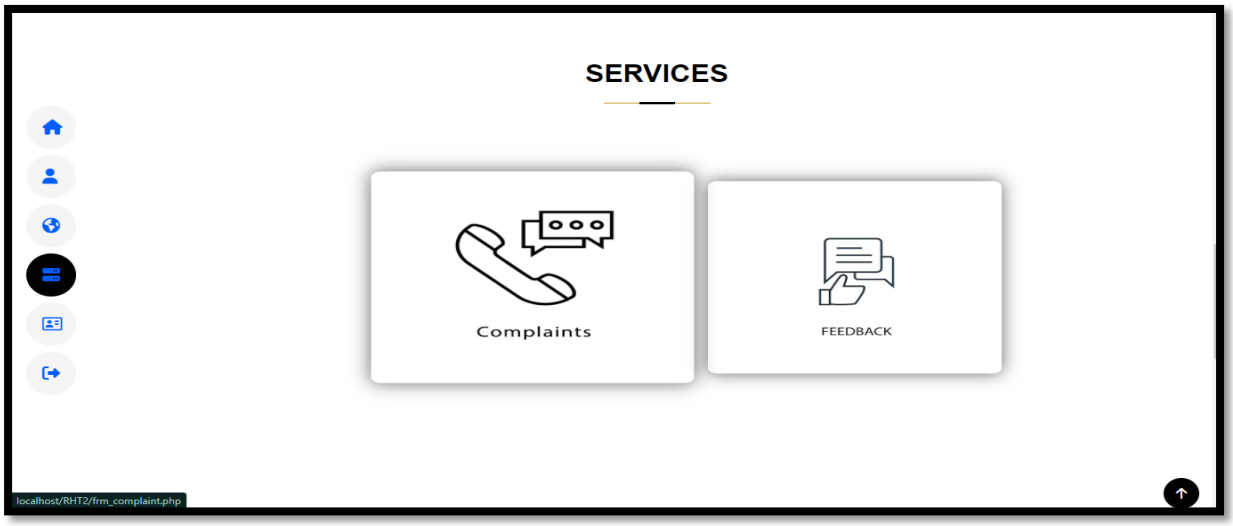

Fig. 23: Services > Complaint

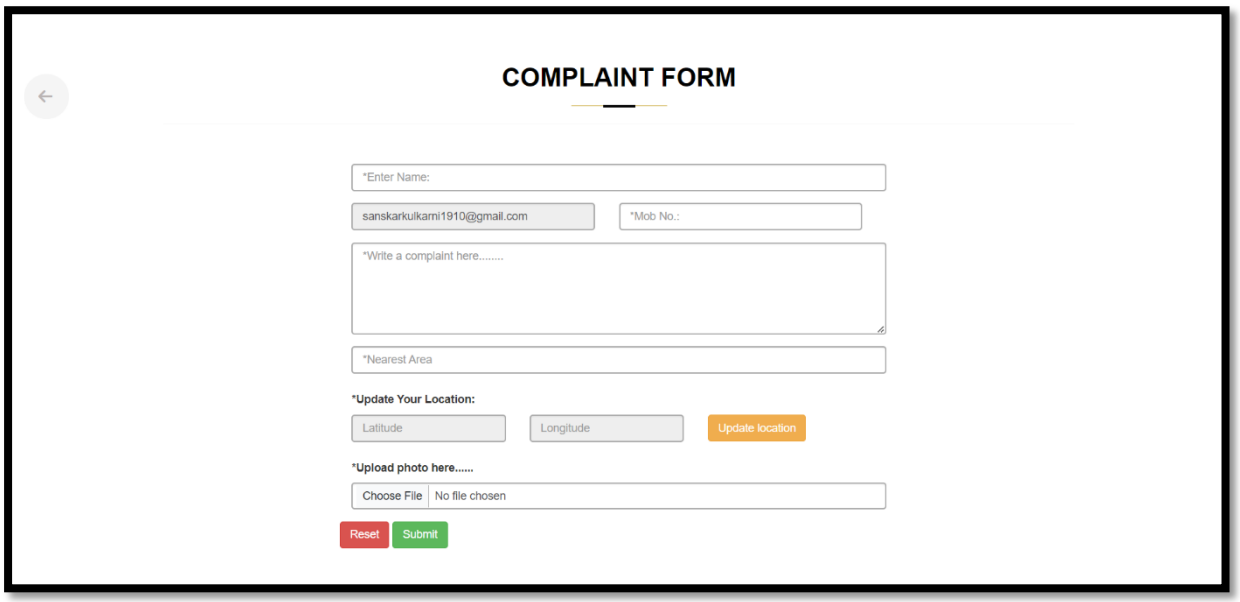

Fig. 24: Complaint Form

In our Website there is one section named SERVICES where are the two options for submitting Complaints and Sending Feedback to us. When the user clicks on Services<Complaints option they will redirect to Complaint form. Where users have to Fulfil the form Carefully. It Includes information related to Road Health, like Area of Road pits, location and some photos related to bad condition or road.

Module 2: Municipal

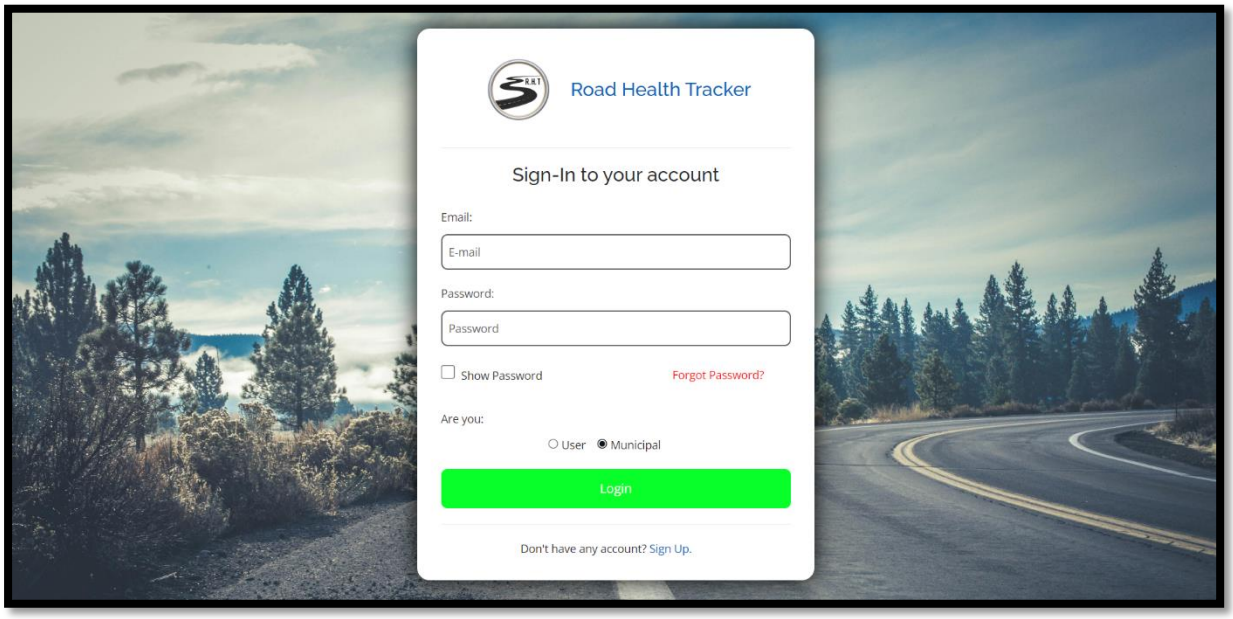

Fig. 25: Municipal Login

When Municipal worker open our website, they have to prompt to enter the Pre-defined Municipal email address and password into the designated fields. And Select the Municipal option. After clicking the option and clicked on Login Button they gaining access to their account and its associated features.

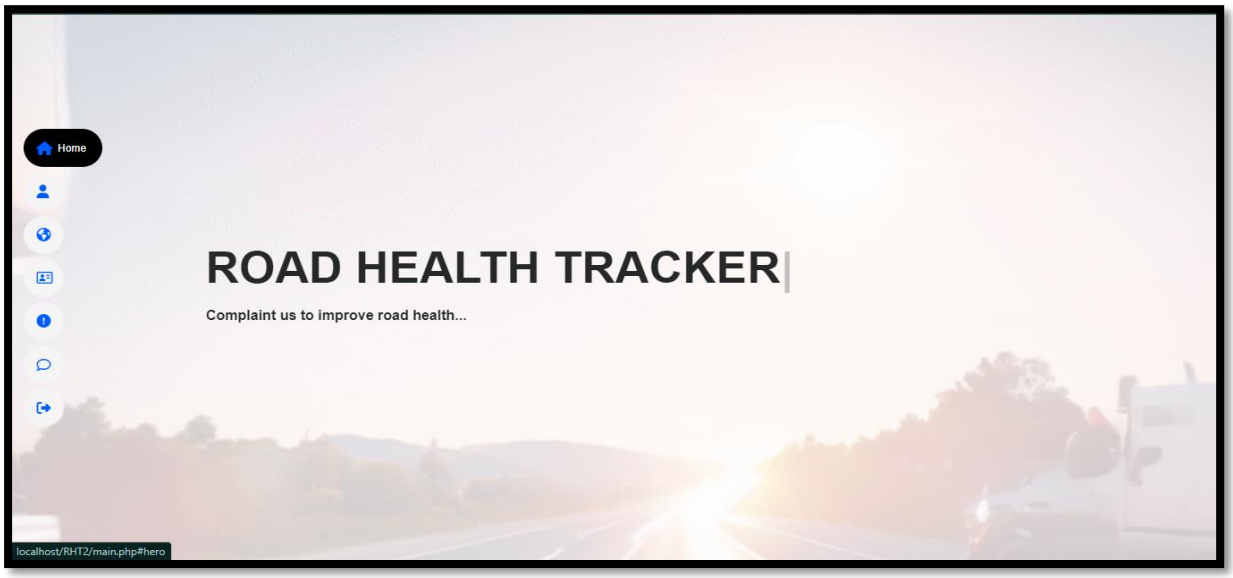

Fig. 26: Home Page - Municipal

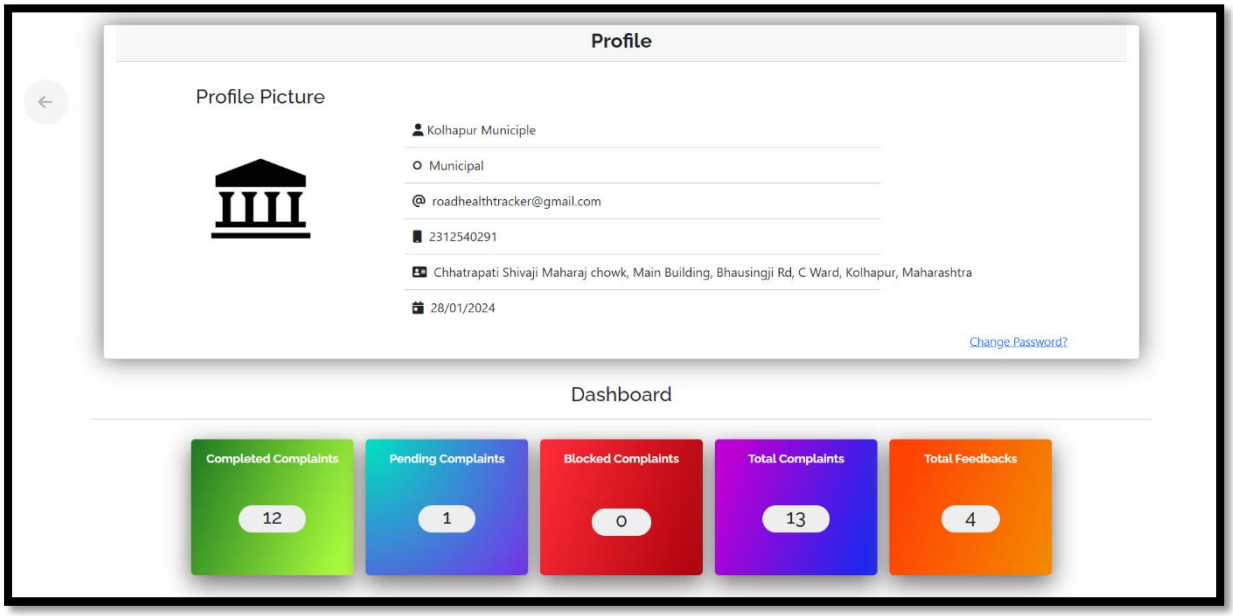

Fig. 27: Dashboard - Municipal

There is two pages of Municipal site, Home-page and dashboard of Road Health Tracker Website. In Home page Mentioned Some Sections of services for Quick Shift like home, profile, Complaints. In profile page, some Basic information of our Municipal worker is shown. And One dashboard which show the Information about users Completed, Pending and Total Count of Complaints. And Also Shows the Count of Feedback of our website.

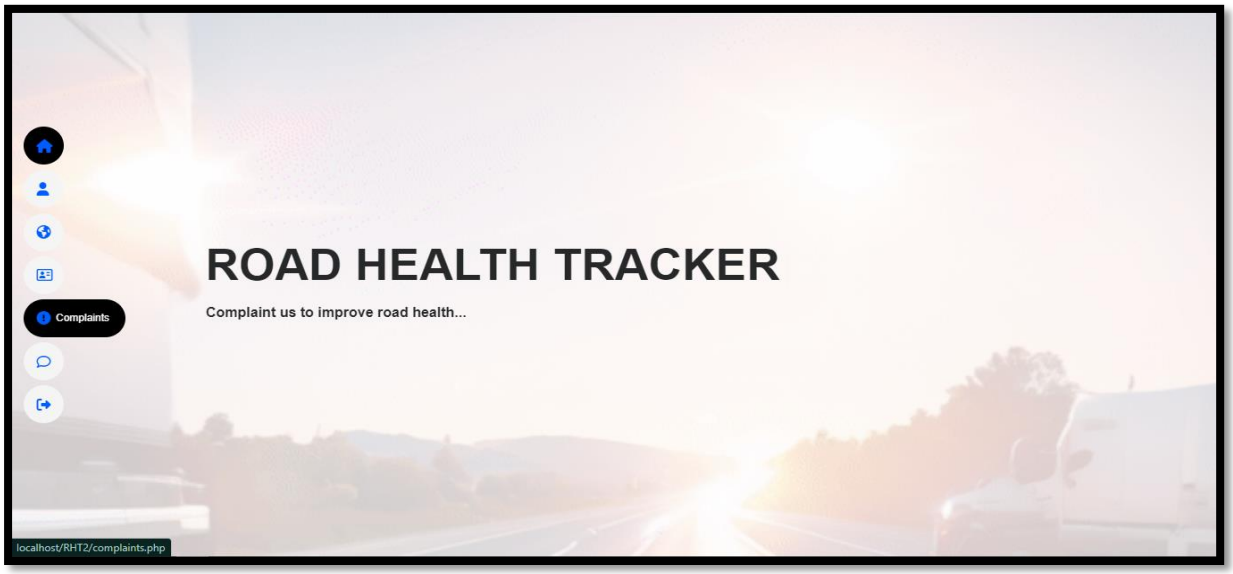

Fig. 28: Home Page>Complaints

Fig. 29: Complaints

In Municipal panel Municipal worker will click on Complaints section from home page then Municipal worker will redirect to the Complaint page where are the all complaints are collected from users from Kolhapur. And it shows the basic Complaint info like Complaint message with road pits photos, Area, location and Date/Time. And option to verify these complaints.

Complaints (Completed)

Sr	Image	Complaint	Area	Location	Date and Time	Posted by	email Id	Verfication	Status
C_0026		There are so many pits in Kolhapur near Vashi so try to fix it	Kolhapur	Click	2024-03-15 11:55:26	Sanskar Mandar Kulkarni	sanskarkulkarni1910@gmail.com	Verified	Completed
C_0027		There are various pot holes in Kini near Ganpati galli Kini.	Kini	Click	2024-03-15 12:03:53	Rushikesh Ravindra Patil	rushikeshpatil1645@gmail.com	Verified	Completed
C_0028		In our Pargaon near amrutnagar there are so many pits so try to fix it	Pargaon	Click	2024-03-15 12:10:18	Shreyash Rajendra Mulik	shreyash.mulik5444@gmail.com	Verified	Completed
C_0029		there are no more pits but in Gandhinagar road near Kalpataru colony there are pits so try to fix it	Kolhapur	Click	2024-03-15 12:14:31	Soham Govind Kulkarni	sohamkulkarni2810@gmail.com	Verified	Completed
C_0030		There are no many pits in Rajarampuri but in 12th lane all lane is int pits so there are happen accidents regularly	Kolhapur	Click	2024-03-15 12:18:40	Atharv Milind Kolekar	kolekar.atharv1812@gmail.com	Verified	Completed

Fig. 30: Complaints>Completed Complaints

After receiving complaints from complaints section, the Municipal worker will verify this Complaints, the received complaint is True or received complaint is from Kolhapur district/Area or not. After all this verification the selected Complaint is Now verified and the related action is taken soon. And this selected complaint is automatically collected to “Completed Complaints”.

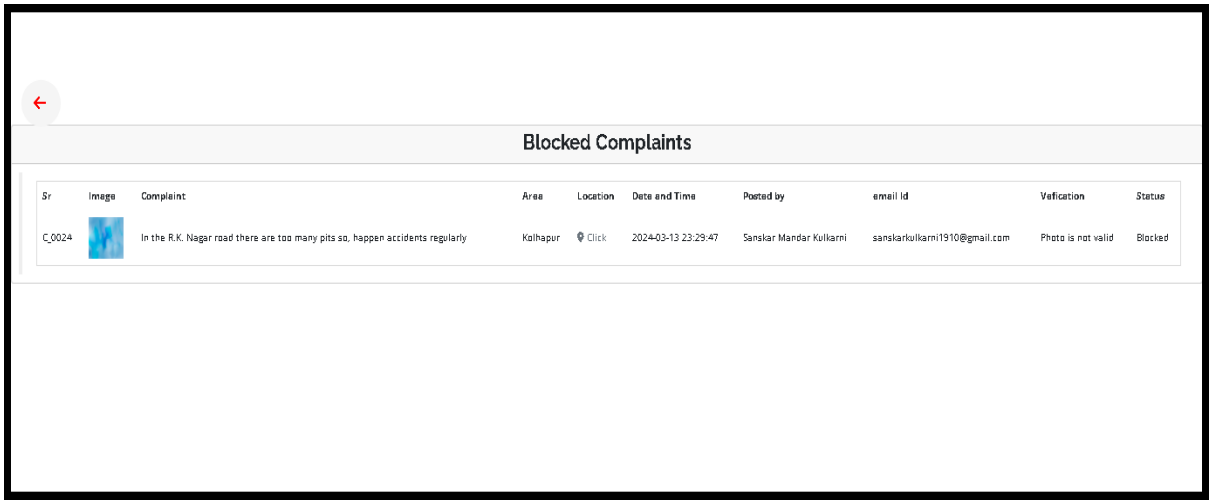

Fig. 31: Complaints>Blocked Complaints

After receiving complaints from complaints section, the Municipal worker will verify this Complaints, if any information is false then municipal worker clicks on Report false button then this complaint is block and automatically send mail to that user.

Database:

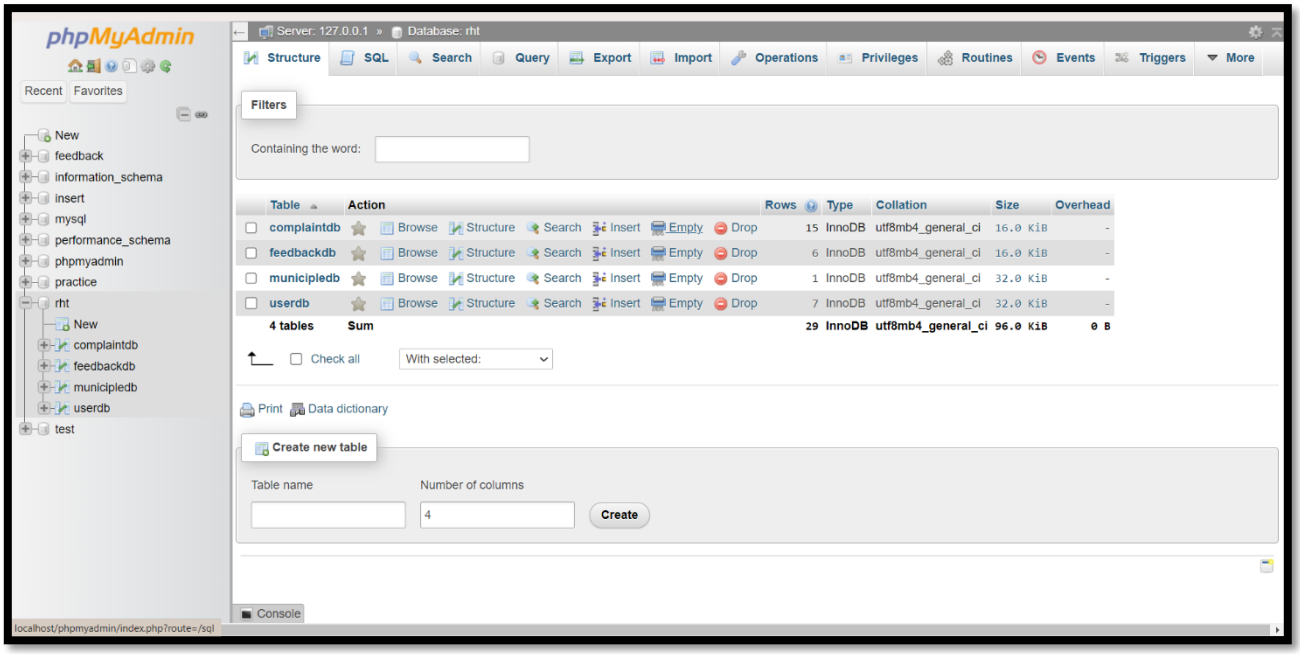

Fig. 32: Database - rht

In this project 'Road Health Tracker' required a single database that's name is 'rht' which consist four tables i.e., userdb, municipledb, feedbackdb and complaintdb that contains information of users, municipal, complaints and feedbacks respectively.

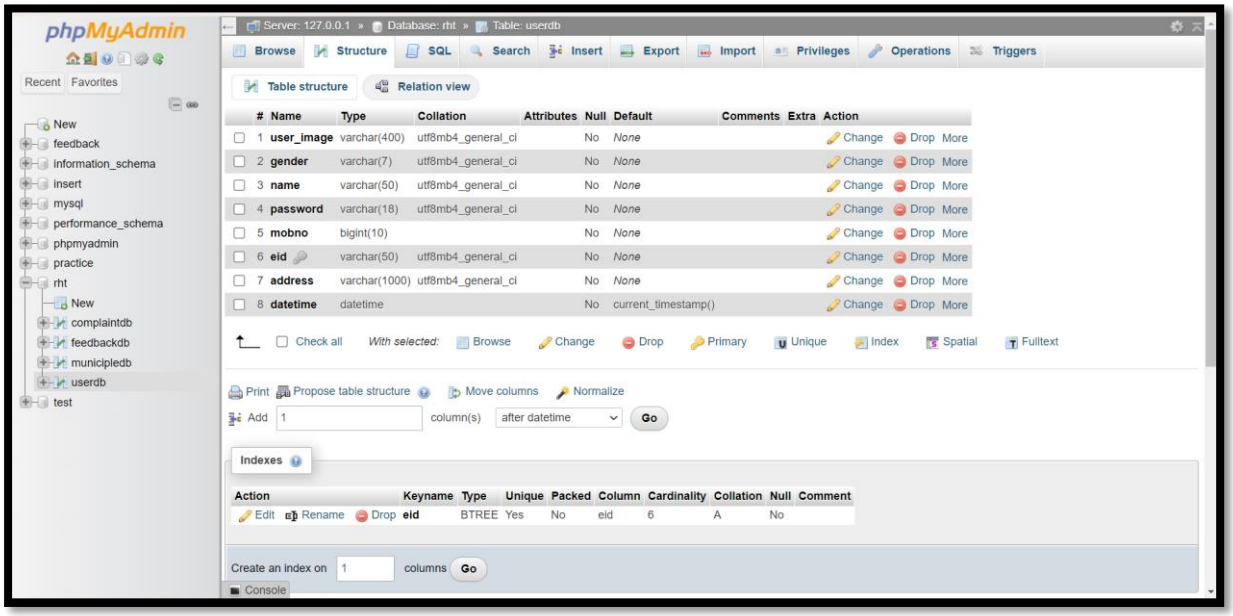

Fig. 33: rht > userdb

When user will create a new account then information of user can be store in userdb table. This table contains information of users such like User Image, Name, Gender, Password, Mobile Number. Email id, Address, Date and Time when user registered. After user will update there password then it will be also change in this table userdb.

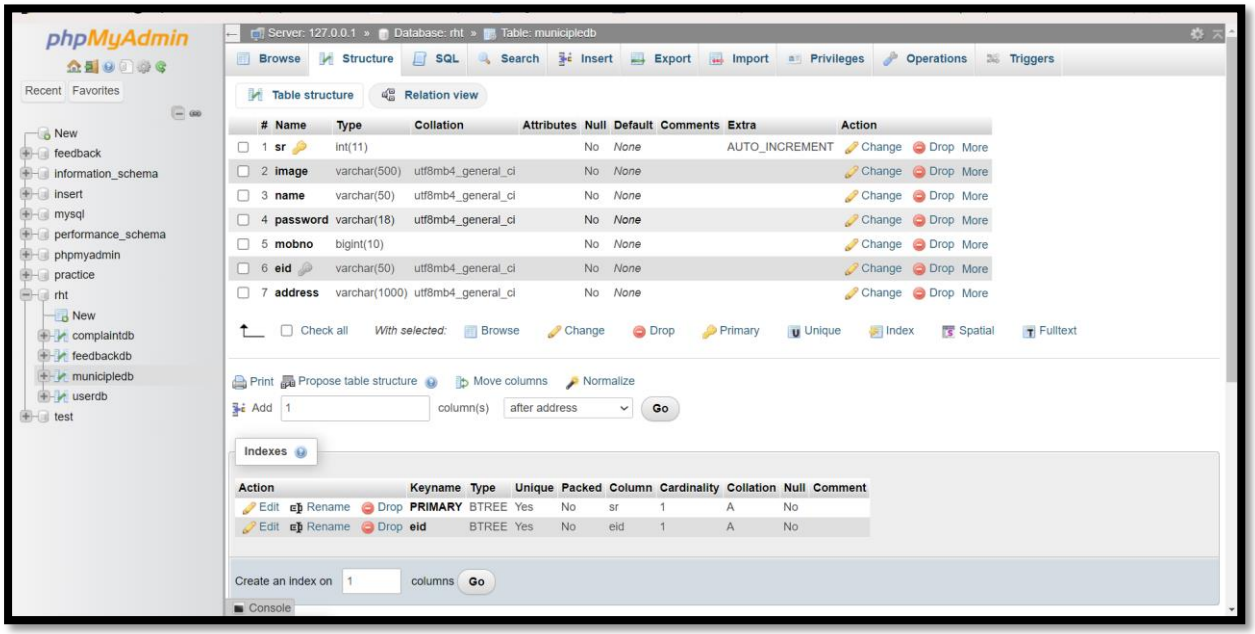

Fig. 34: rht > municipledb

When we will create the municipal's account then first, we have to update here. When we will create the account of municipal then it will be able to login with their username and password. This table contains information about municipal such like Municipal Image, Municipal Name, Password, Mobile Number, Email id of Municipal, Address of Municipal.

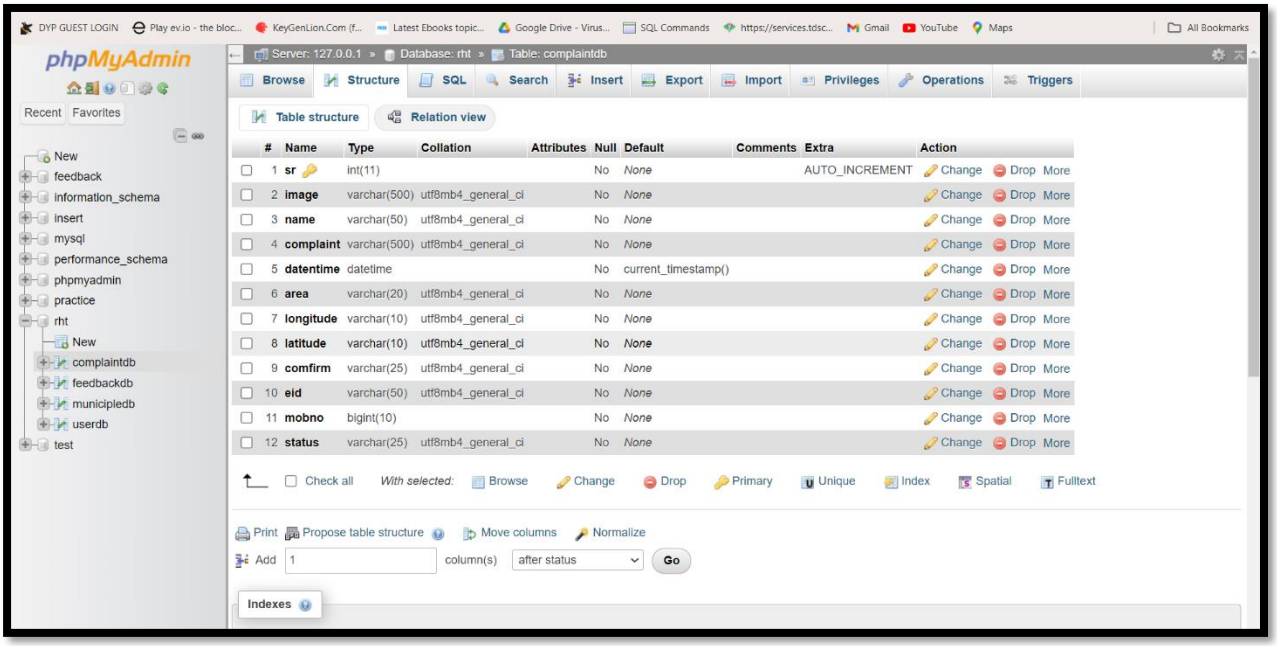

Fig. 35: rht > complaintdb

When user will submit their complaint then it will be store in this database as tabular format that's name is complaintdb. It consists the all the data of complaint i.e., Complaint id, complaint image, Complaint Registered User Name, Complaint message, Complaint registered date and time, Area near complaint, location (latitude & longitude) of complaint area, verification status, Completed status and also users email id and Mobile Number.

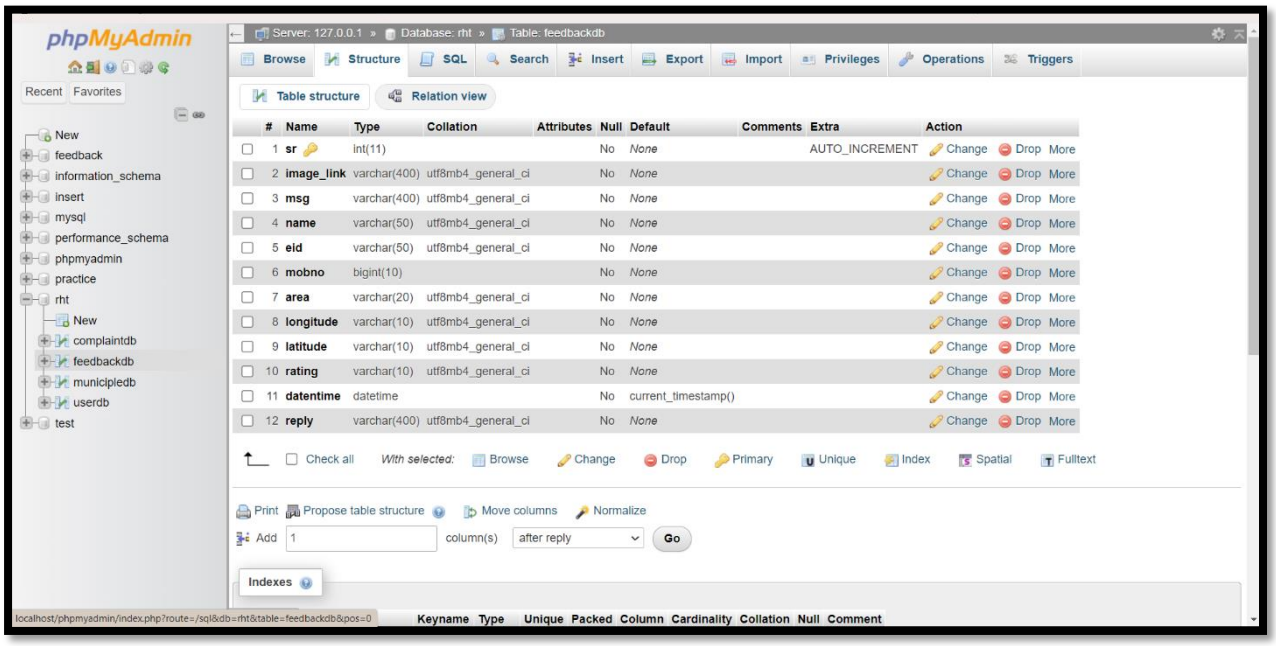

Fig. 36: rht > feedbackdb

When user will send the feedback of road then it will be store in feedbackdb table. It is used to store the feedback report send by user and also it will access on both side that is user and municipal. This feedbackdb contains Feedbacks id, Image, Review, Rating, Email-id, Mobile Number, Feedback Registered Username, Feedback Registered Date and Time, Location, and replay given by the municipal to user.

HARDWARE AND SOFTWARE REQUIREMENTS

Requirements

Hardware Requirements:

- **CPU:** min 1.4Ghz, 64/32 bit or higher
- **RAM**: min 1 GB
- **Network:** Wi-Fi or LAN

Software Requirement:

- **Operating System:** Windows 7 or above
- **Front end:** HTML, CSS, JS, Bootstrap 5.0
- **Back end:** PHP, MySQL
- **Web server:** Apache.

PROJECT LIFE CYCLE

"Road Health Tracker" is a web platform designed to address issues related to road hazards and dangerous conditions by serving as a liaison between the public and local municipal authorities. The platform operates through two distinct models: user and municipal. In the user model, individuals log in to the website and access a complaint form in the services section. Users provide basic information such as name, phone number, location, and upload images of road hazards along with any comments. Upon submission, the complaint is automatically uploaded to the database. The user's role concludes here. In the municipal model, municipal workers log in to the platform to review all received complaints. They take specific actions based on the nature of the complaints. After approval of the complaint, users receive notifications confirming that their complaint has been successfully received and that action is being taken. This lifecycle ensures a streamlined process for reporting road hazards, facilitating prompt action by municipal authorities, and providing feedback to users, thereby enhancing road safety and overall community welfare.

Flow of Website:

1) Flow of Website – User

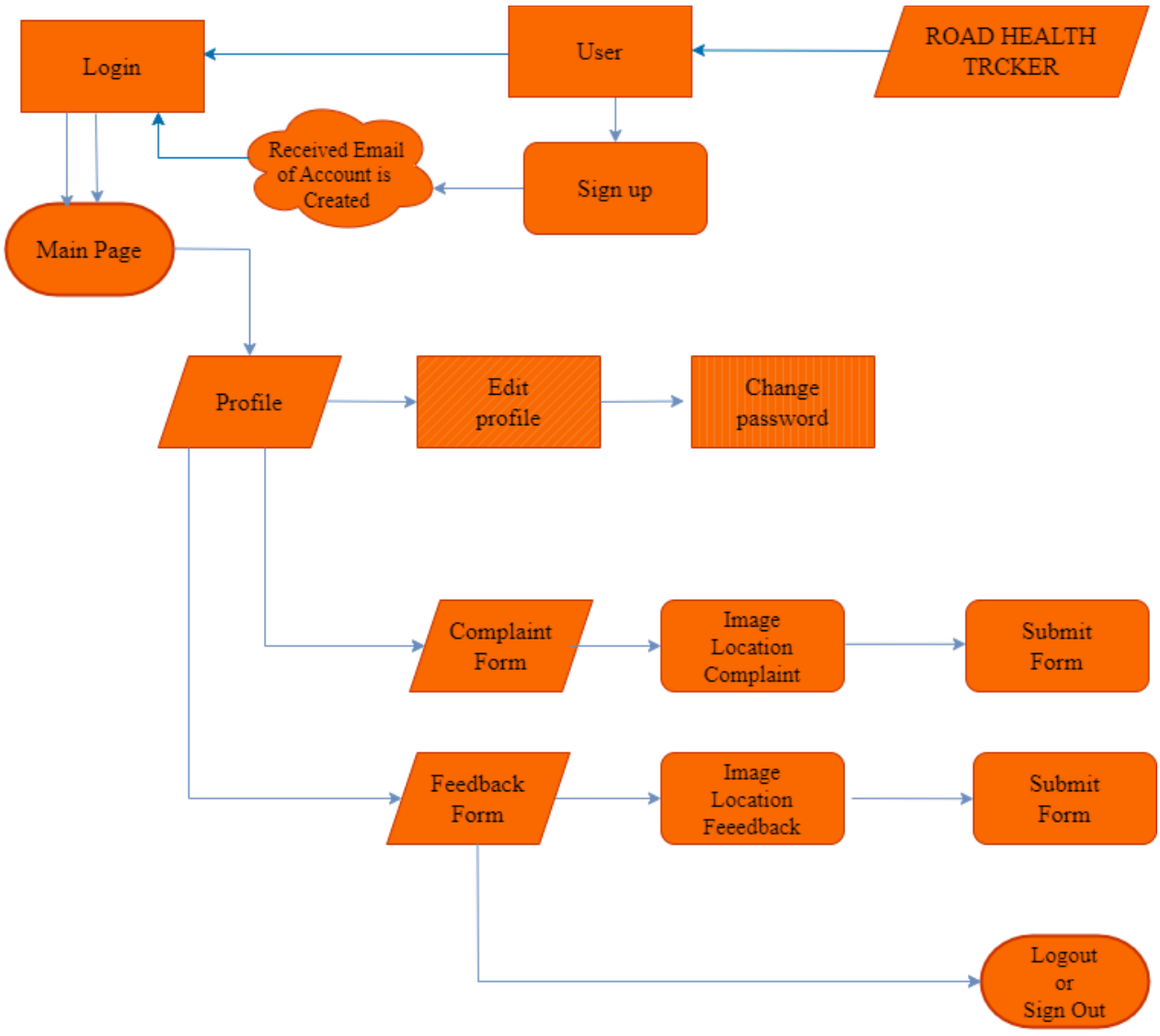

Fig. 37: Flow of Website- User

2)Flow of Website – Municipal

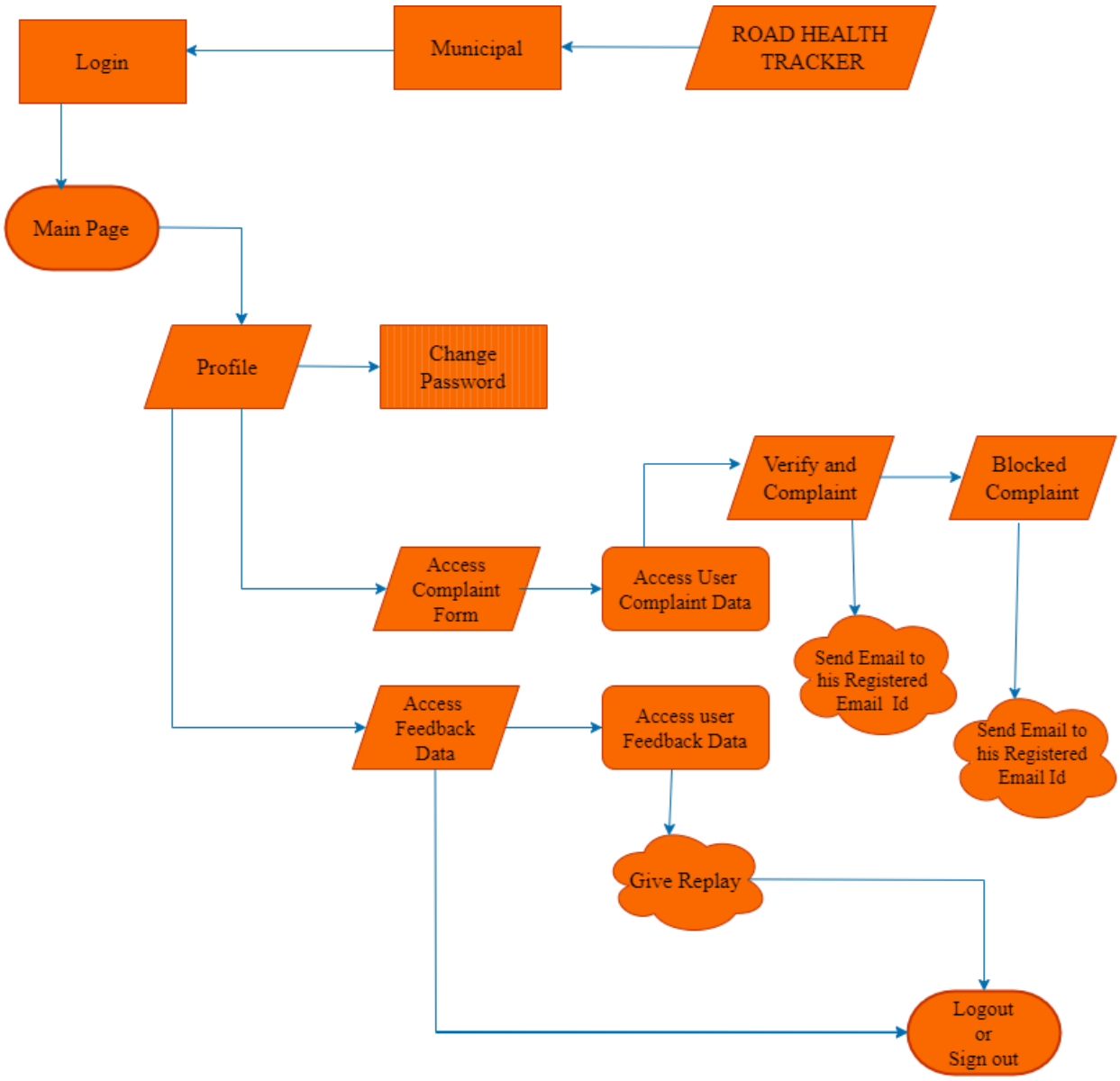

Fig. 38: Flow of Website – Municipal

CONCLUSION AND FUTURE SCOPE

Conclusion:

"Road Health Tracker" is a commendable initiative aimed at addressing the critical issue of road hazards and unsafe conditions. By leveraging technology, the platform serves as a vital link between citizens and municipal authorities, facilitating efficient communication and action.

The user-centric model simplifies the process for individuals to report road pits and hazards in their surroundings. With just a few basic details and the submission of necessary evidence, users can swiftly lodge their complaints. The seamless integration of a complaint submission form ensures convenience and accessibility, encouraging more individuals to participate in improving road safety.

On the municipal side, the platform provides a structured framework for authorities to review and address incoming complaints. By centralizing complaint management, municipal workers can prioritize and allocate resources effectively, leading to timely resolutions. The transparency of the process instils trust and confidence among citizens, as they receive notifications about the progress of their complaints.

Future Scope:

- **Enhancing User Engagement:** Introduce features to gamify the reporting process, such as rewards or badges for active participants. Additionally, incorporating social sharing options can amplify awareness and encourage community involvement.
- **Integration of AI and Data Analytics:** Implementing artificial intelligence algorithms can streamline complaint categorization and prioritization based on severity. Data analytics tools can generate insights from complaint patterns, enabling proactive measures to prevent recurring issues.
- **Mobile Application Development**: Expanding the platform to mobile devices through dedicated applications can further improve accessibility and user engagement. Mobile apps can leverage GPS capabilities for precise location tagging and real-time updates on complaint status.

- **Collaborative Partnerships**: Forge partnerships with other stakeholders, such as road maintenance companies or academic institutions, to access additional resources and expertise. Collaborative efforts can lead to innovative solutions and holistic approaches to road safety.
- **Expansion to Other Services**: Consider broadening the scope of the platform to address other urban infrastructure challenges, such as waste management or public transportation. By diversifying service offerings, "Road Health Tracker" can become a comprehensive civic engagement platform.

PAPER PUBLISHED

Paper Published:

[1] [1]Atharv Kolekar, [2]Sanskar Kulkarni, [3]Shreyash Mulik, [4]Rajvardhan Yadav (2024). Road Health Tracker – A Comprehensive Approach to Enhanced Road Condition Monitoring and Improvement. Journal of Emerging Technologies and Innovative Research (JETIR) www.jetir.org, b728-b733.

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