PARSHWANATH CHARITABLE TRUST'S
A.P. SHAH INSTITUTE OF TECHNOLOGY
Department of Computer Science and Engineering
Data Science

NeighbourNet: Enhancing Community Connection with Machine Learning

Student ID	Group Members
21107003	Sumit Samanta
21107032	Janvi Sharma
21107065	Shreyas Revankar
21107013	Devansh Kopra

Project Guide
Prof. Anagha Aher

1. Introduction

NeighbourNet is a platform aimed at enhancing accessibility to community services through the application of machine learning.

Motivation

- Many citizens encounter challenges in accessing essential community services due to official processes, long wait times, and complex procedures.
- Machine learning offers opportunities to automate and optimize processes, potentially improving the delivery of community services.

1. Introduction

Objectives

- To Develop user-friendly interfaces and platforms that facilitate easy access to community services.
- Ensure that community services are accessible to a wider range of citizens, including those with limited technological proficiency.
- To continuously refine and enhance NeighbourNet’s features based on user feedback and evolving technological advancements.

2. Literature Survey of the existing system

Sr No.	Title	Author	Year	Outcomes	Methodology	Result
1	[1] Classifying Crowdsourced Citizen Complaints through Data Mining: Accuracy Testing of kNearest Neighbors, Random Forest, Support Vector Machine, and AdaBoost."	Evaristus D. Madyatmadja, Corinthians P.M. Sianipar, Cristofer Wijaya and David J. M. Sembiring.	2023	Most of the Feedback analysis uses Naive Bayers algorithm which provide bais output	Using random forest algorithm,If the predictions from individual trees are not perfectly correlated, some trees will be wrong, but many will be right; thus, as a group, the trees are able to move in the correct	Using Random Forest Algorithm it provides more accurate analysis and it is more reliable.

2. Literature Survey of the existing system

Sr No.	Title	Author	Year	Outcomes	Methodology	Result
2	[2] Chat Analysis on WhatsApp using Machine Learning	N.T. Renukadevi , S. Nanthitha, K. Saraswathi, S. Shobika, R.T. Karthika	2023	inability to handle unstructured data efficiently, leading to challenges in extracting meaningful insights from large volumes of text	Whatsapp chat analysis by leveraging pattern recognition through urlextract, creating interactive visualizations with Streamlit, and conducting statistical analysis and data visualization using Seaborn and	analyze and categorize chat content accurately, enabling deeper understanding and actionable insights from the conversations.

2. Literature Survey of the existing system

Sr No.	Title	Author	Year	Outcomes	Methodology	Result
3	[3] Secure On-Demand Routing Protocol for MANET using Genetic Algorithm.	D. Suresh Kumar, K.Manikandan, M.A.Saleem Durai.	2011	Allocation of service on short time is a task an cannot be handled manually.	Evolving optimal or near-optimal routing plans through a process of selection, crossover, and mutation based on predefined fitness criteria and constraints.	By using genetic algorithm we can find the shortest path for sending request.

2. Literature Survey of the existing system

Sr No.	Title	Author	Year	Outcomes	Methodology	Result
4	[4] Implementation of a Chatbot System using AI and NLP.	Tarun Lalwani, Shashank Bhalotia, Ashish Pal, Vasudhara Rathod.	2018	Government websites usually lacks for an another user interface where user can directed get the result rather than browsing through the webpage.	Training a model on large datasets of conversational data to understand user input, generating appropriate responses, and continuously refining the model through iterative learning processes.	Easy Communication and Hassle free web application.

3. Limitations of existing systems

- Community systems face limitations due to unequal access to technology, creating disparities in citizen participation and access to services.
- Community systems are vulnerable to cyber threats like hacking and data breaches, necessitating constant investment in robust cybersecurity measures to safeguard citizen information.
- Complex interfaces and usability issues hinder citizen engagement, especially for those with limited digital literacy or disabilities, underscoring the need for improved accessibility and user-friendliness.

4. Problem statement

- To help people access important community services more easily by making the process simpler and faster, and by spreading awareness about the services available.
- To help community agencies better handle citizen feedback and complaints so they can respond quickly and resolve issues effectively, rebuilding public trust in community services.
- Old methods and outdated systems make it hard for community services to grow and work efficiently.

5. System Design

- NeighbourNet is a web application.
- In NeighbourNet's homepage, user will get four options: Register, Services, About Us, and Contact Us. In Services there are four main features of our system citizen feedback, whatsapp chat analysis, request routing and chatbot.
- In Citizen Feedback, the user can give feedback for garbage, road and sewage based on which visualization will be provided.

5. System Design

- In chatbot, the user enters his questions and suggestions are provided on the same.
- In Request Routing, taking service request from the user and alloting it to the specific department who handles that service.
- In WhatsApp Chat Analysis, users have to select a particular contact, for which person we have to analysis the text.

6. Technologies and methodologies

Front-End:

- HTML 5
- CSS 3

Middleware:

- Python 3.11.3
- Flask 3.0.2

Datasets:

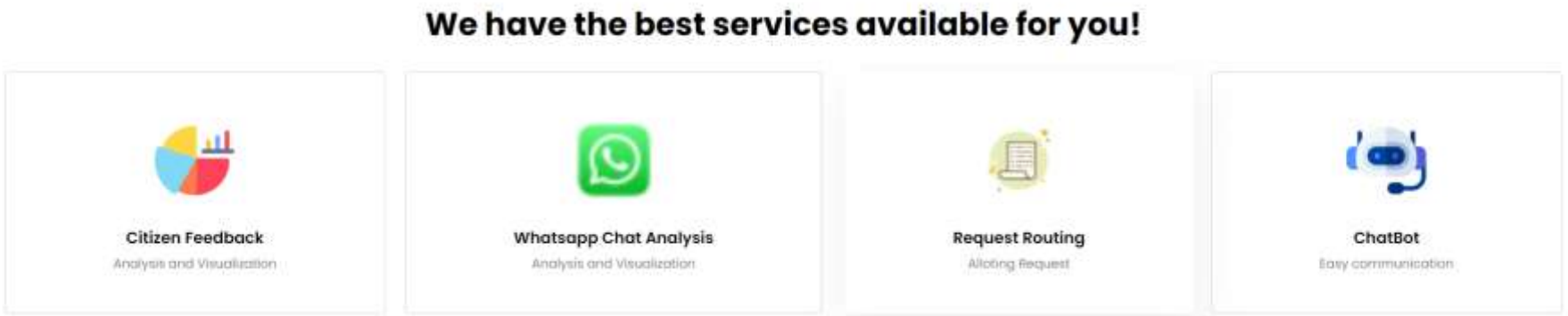
- Dataset_feedback.csv(50 ,5)

Algorithms Used:

- Random Forest
- Genetic Algorithm

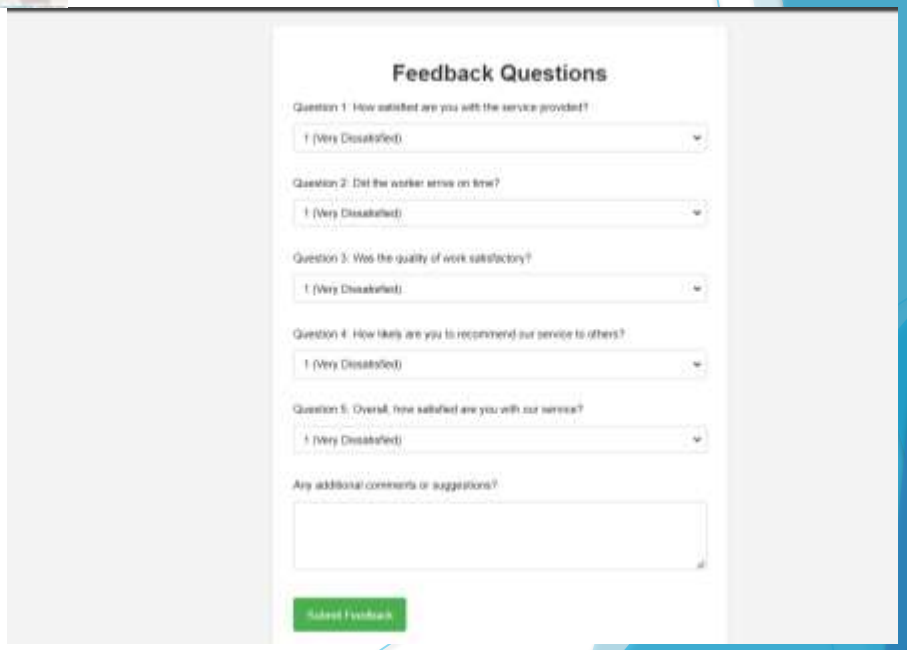
7. Implementation

Homepage:

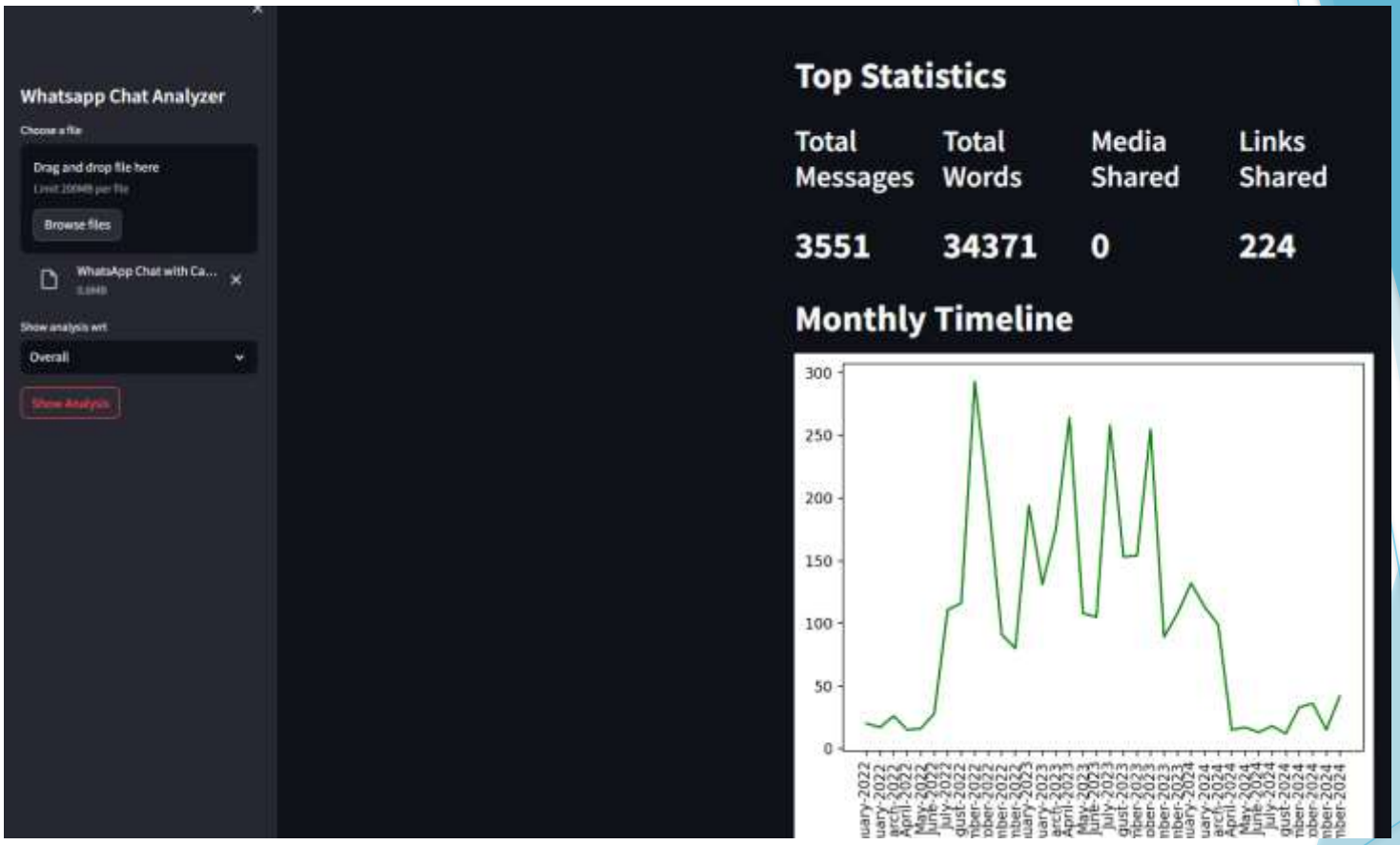


Services:

7. Implementation



7. Implementation



7. Implementation

Service Request Form

Area Name:

Kalwa Naka

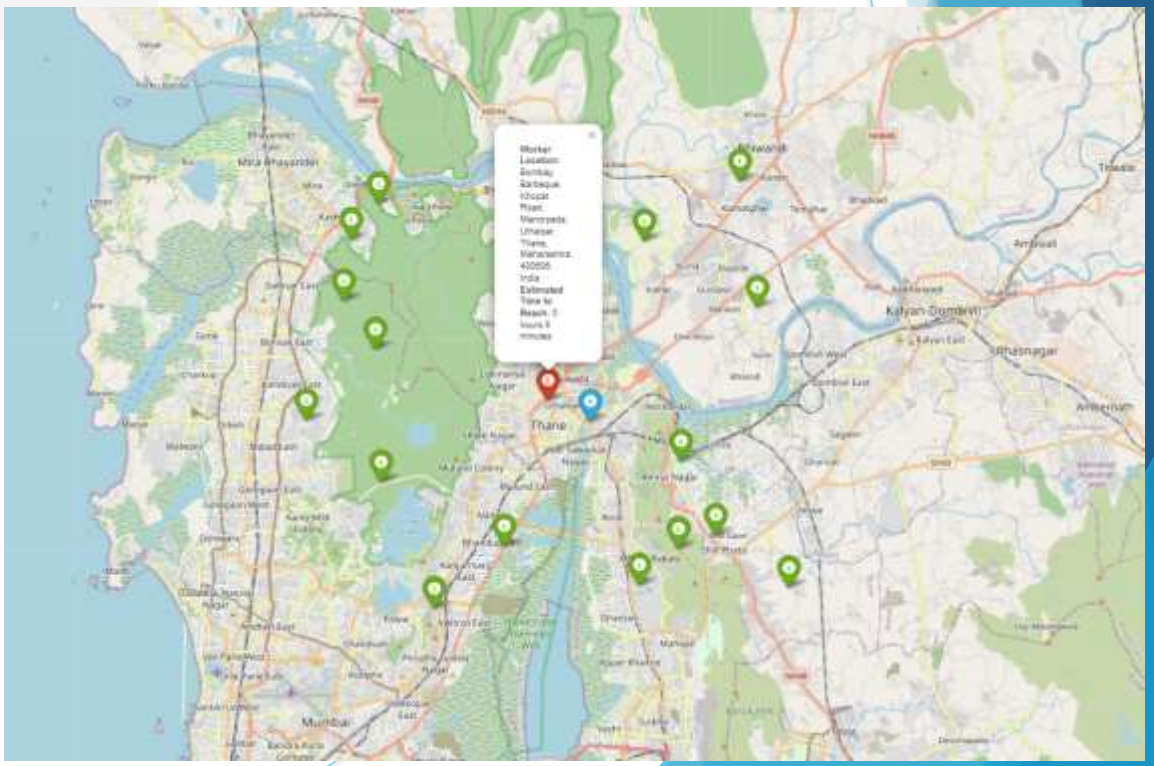
Service Address:

Salvi Road

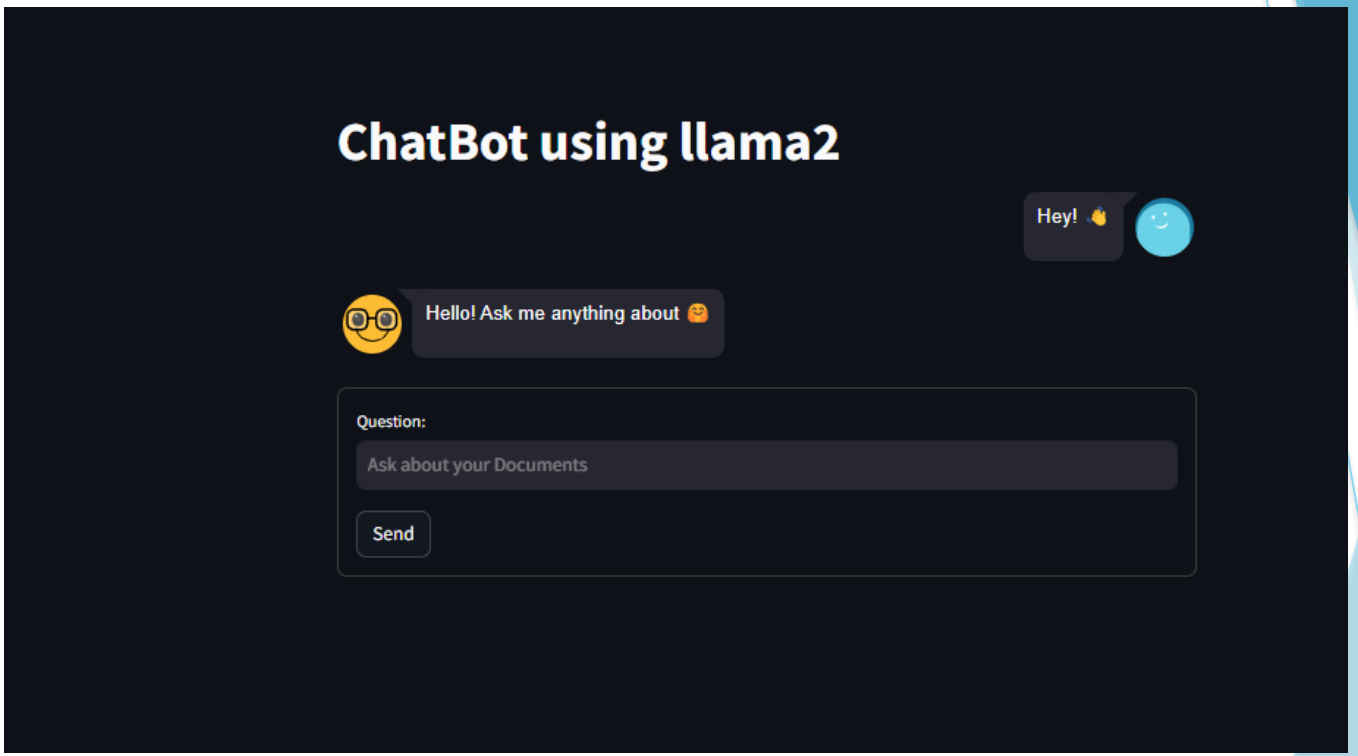
Service Type:

Garbage Collection

Submit



7. Implementation



8. Conclusion

- NeighbourNet strives to make accessing community services easier and more efficient for everyone. By providing features like citizen feedback, whatsapp chat analysis, request routing, and chatbot assistance, NeighbourNet aims to improve transparency, responsiveness, and trust in community services.
- Through innovation and technology, NeighbourNet seeks to empower citizens and community agencies alike, fostering a more connected and responsive community.

9. References

[1] Madyatmadja, Evaristus D., et al. "**Classifying Crowdsourced Citizen Complaints through Data Mining**: Accuracy Testing of k-Nearest Neighbors, Random Forest, Support Vector Machine, and AdaBoost." Informatics. Vol. 10. No. 4. MDPI, **2023**.

[2] Renukadevi, N. T., et al. "**WhatsApp Group Chat Analysis by using Machine Learning.**" 2023 International Conference on Sustainable Computing and Data Communication Systems (ICSCDS). IEEE, **2023**.

[3] Manikandan, K., Saleem Durai, and Suresh Kumar D. MA. "**Secure On-Demand Routing Protocol for MANET** using Genetic Algorithm." International journal of computer applications 975, **2011**.

[4] Lalwani, Tarun, et al. "**Implementation of a Chatbot System using AI and NLP**." International Journal of Innovative Research in Computer Science & Technology (IJIRCST) Volume-6, Issue-3 ,**2018**.

Thank You!!