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ROAD DAMAGE DETECTION USING DEEP LEARNING

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ABSTRACT: Road accidents are considered as the most important problem faced by the public, as they lead to numerous injuries and deaths worldwide. Utmost accidents are caused by mortal error, it is important to be conservative. India is one of the developing countries with the highest rate of accidents. Thus, transportation authorities, external authorities and the public are fastening on measures to reduce the inflexibility of these accidents in order to reduce the death rate. Some of the causes of road accidents are damaged roads, extreme rainfall similar as thick fog, inordinate rain, heavy winds, potholes etc. This design is substantially grounded on the sphere. The common people under the government must deliver their complaints about day-to-day road problems and accidents on roads. In India we do not have any direct communication between the government and public in an effective way for working out the problems. It will give a common man to present his complaints and problems to external authorities, who pass them on to the government to address the road accident in a short period of time. It acts as an interface to register one's complaint and follow it up. It also provides a complaint module which helps citizens to click up a picture of any road problem that people are facing and upload its image, road condition and position along with the complaint. In addition to that it also includes the feedback forms which will enable them to communicate with the government effectively.

1. INTRODUCTION:

In India, there's no effective direct communication between the government and its people for issue resolution, i.e., to get a problem fixed in our country, we have to go to the authorities and stay months for it to be resolved when it might be done in a week or even months. Government must re- evaluate how technology may be used to improve citizens end-to-end experience with government services. Creating a "citizen-first" culture is one way to ensure that the requirements of citizens are metfirst. The ultimate thing is to improve the service and quality we provide, to encourage transparent effective relations and to boost public confidence in government. Through this we can improvise the solutions for citizen issues. Traditional routes for interacting with the part of government, reporting issues, and furnishing input is being replaced by social media and mobile technologies. People can use mobile services like apps and SMS to get the services they need in a more accessible and customized approach to their requirements. These participation tools also promote increased citizen engagement by incorporating them in problem- working and service co- design.

To address this issue, the National Informatics Centre preliminary developed a website called Prajavani, where the public may lodge desires or enterprises and have them resolved within a certain time frame, still because of its inefficiency and lack of stoner benevolence, it was not extensivelyused by citizens, and its limited translucency redounded in its lack of fashion ability. The

major thing of this design is to help the public in learning about their position, as well as having their enterprises fixed online rather than having to see the officer in the spot on frequent base until the situation is resolved . Through this the public will able to save time by using this system. India's road network, besides being the lifeline of the Nation and a major contributor to socio economic growth and development, also has the largest donation to accidental deaths in the country with road accidents counting for 36 - 38(There were a normal of deaths due to other causes during the period from 2015- 19)

Road accidents have been the leading cause of deaths worldwide during the last three decades it has been the number- one killer in utmost countries. The road features similar as straight stretches, twisted roads, and crossovers position of potholes etc., are some conditions for road accidents. Weather conditions will not only impact just the road face condition but also the visibility of the road thereby adding chances of road accidents. Heavy rain, thick fog and hail storms reduce visibility and make the road face slippery therefore posing serious pitfalls to the road. Utmost of the causative factors the road accidents in India are caused due to either road terrain related issues or due to mortal factors.

2. OBJECTIVE:

This paper presents the overview of the analysis and development of the Road complaint management system of the Municipal Corporation. There will be remarkable results obtained by the implementation of this project and also they help in encouraging the development of this type of road complaint management systems or more complex systems. Generally the complaints and other types of feedback play an important role in the development of any organisation and to interact with the citizens in a better way. This application is useful for the municipal corporation to file their complaints online. A complaint message is assumed by consumer complaint in to be a description of a situation experienced by a citizen. A complaint is only a personal opinion by a consumer, a perception of a consumer. That personal perception and/or opinion based on their own personal experience can be powerful, or meaningless, in the opinion of Consumer, depending upon the context and content of what is written. We're not responsible for the way that information is interpreted by whoever reads it. Which of course varies from person t o person, depending on who they are, their own personal experiences, biases, opinions, etc.

3. SOFTWARE REQUIREMENT SPECIFICATIONS

a) Matplotlib (version 3.7.2)
b) NumPy (version 1.24.3)
c) OpenCV-Python (version 4.9.0.80)
d) Pandas (version 2.0.3)
e) Pillow (version 10.2.0)
f) scikit-learn (version 1.3.0)
g) Seaborn (version 0.13.1):
h) Streamlit (version 1.30.0)
i) PyTorch (version not specified)
j) Ultralytics (version 8.1.1)

4. HARDWARE REQUIREMENTS

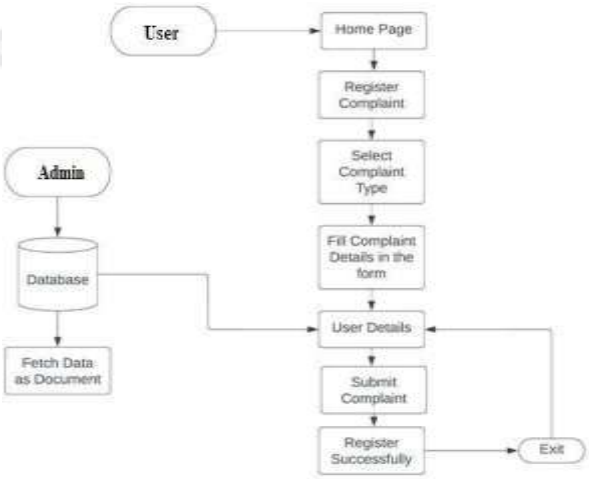
Cpu: **Intel core I5 or Ryzen 5 series**

RAM: **8GB (Minimum)**

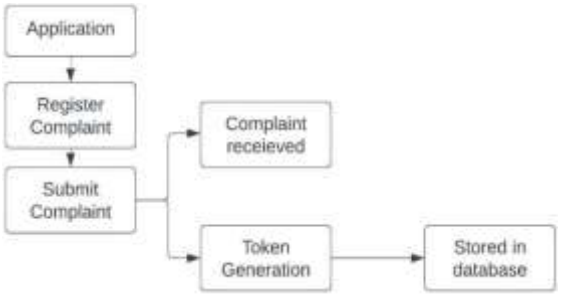
SSD: **128GB (Recommended)**

GPU: **2GB (Integrated or Dedicated)**

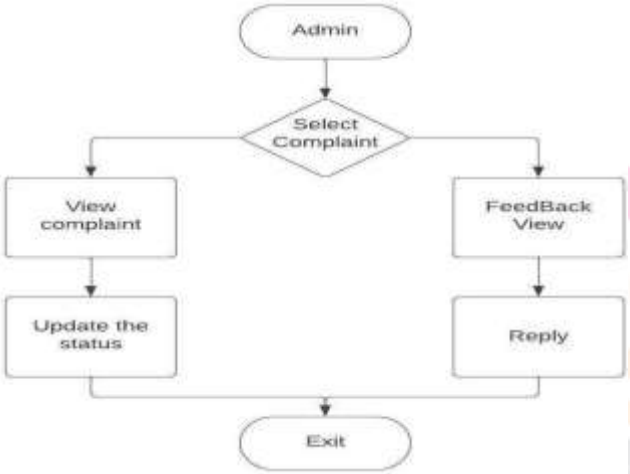
5. DATA FLOW DIAGRAM



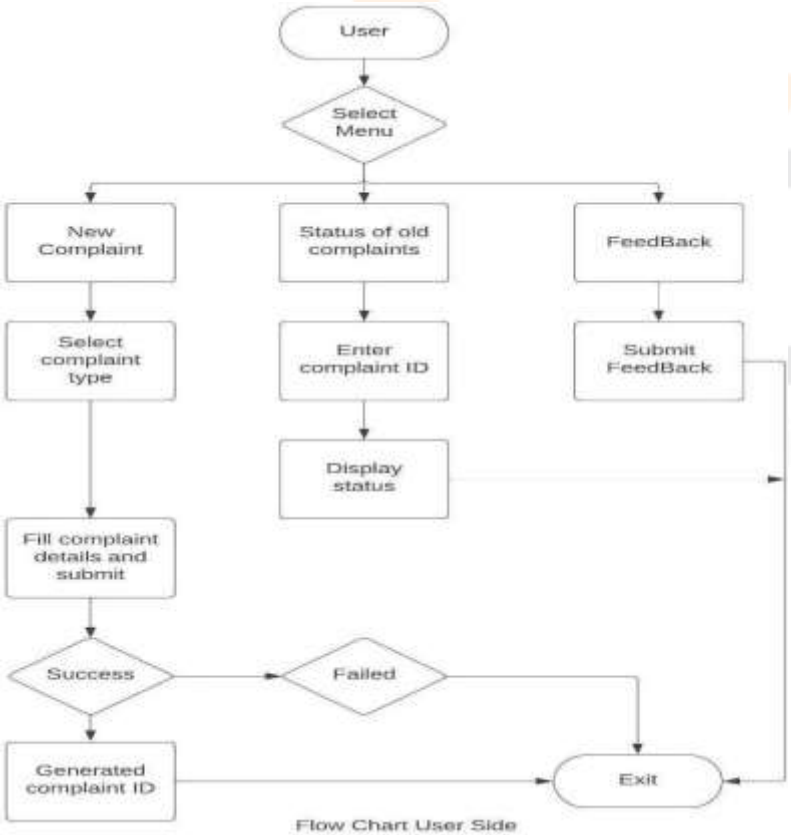
6. BLOCK DIAGRAM:



7. FLOW CHART ADMIN SIDE:



8. Flow chart – USER SIDE:



Flow Chart User Side

9. CONCLUSION :

In this application, it is explained about the working procedure of the system, the roles involved in the system and the activities and responsibilities of those users. It presents the overview of the analysis and development of the Municipal Corporation Road complaint management system. There will be remarkable results obtained by the implementation of this project and also they help in encouraging the development of this type of road complaint management systems. Generally the complaints and other types of feedback play an important role in the development of any organisation and to interact with the customers in a better way. This system can be taken as initiation for the systems which will be developed even more in future and which are related to road complaint management systems.

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