



## POTHOLE DETECTION USING MACHINE LEARNING TO PROVIDE BETTER GOVERNANCE

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**Abstract:** This project is applied for concept of Detection of the potholes on the public routes/roads with the help of Machine learning and connect local administration with the concerned user with the help of smart user interface. The citizens can directly access this with the help of an cross platform mobile application. The scope of this project is very wide as it has potential to address large public issue of pothole on public roads. All the data and the information is stored on cloud shared storage so it can be easily accessible o both administration and end users. Further, He or She who is filing complain with the help of our application can also recheck if the further action has been taken on the complaint or not by contacting the concerned department .

**Keywords:** pothole detection using machine learning to provide better governance

### I. INTRODUCTION

**Potholes** is an serious issues as far as local administration is concerned A total of 3,564 accidents took place in India due to potholes in 2020 which is a very high number as compared to other developing nations the major part of the problem is the proper detection of and identification of the potholes on the transport routes . the lack of improper system for the identification of these potholes leads to lot of loss of public money . Our mobile application helps the public as well as local administration in the better identification and fast, accessible, smart solution this problem especially in tire-2, tire-3 cities where there is lack of such infrastructure .The key issue in this is to connect the end user with the authorities here comes the Technology which plays vital role in solution to this problem. Our smart user interface makes it easy for the citizens to use this app also encourage them to use it more often as it is very easy to use and not very complex and tedious process. The

application of this project is not limited to local routes it can also be used on the national highways and by other government entities such as ministry of transport and NHAI . Our solution is very easy to implement and at the same time very easy to scale . We use central cloud shared database hence it makes it easier to apply Machine Learning technologies in identifying which route is having max possibilities of potholes or which road has maximum number of complaint register so administration can take action on the concerned road contractor .Our mobile application also uses GPS service so we can track exact location . we uses modern day Machine Learning to run various analysis on the Data collected for providing better user experience.

Our cross platform application is an smart user interface with the key features such as camera feature to detect the pothole, GPS location tracker so that we can send the exact location to the concerned authorities. Backend Machine Learning to predict and analyse data for better and efficient

user Experience .In an governance context, Our app is an form of an tool for the local government to promote and provide better , smart, fast and much more accessible, and much cheap solution to connect the public issues with the conserved department and track that action is taken or not. This use is typically found in the US, Canada, and some Tire-1 cities in India. For instance, In Mumbai, Bangalore, and Delhi there local government is trying to work on various technology solution for better addressing this problem but there Tire-1 cities already have big budgets to afford expensive solution and they also have already present such technology infrastructure over there . But there is no such solution available in the Tire-2, and ire-3 cities.

## II. RELATED WORK

The first problem is that there are is not any form of better easy system which can fast and easily connect end user with the local authorities in an seamless manner. This brings us to the age-old discussion of keeping Technology and internet as our partner in our solution despite keeping the same on sheets of paper. Connecting the end user with government using paper approach is not smart approach: Complex and tedious approach – It becomes a problem in itself to find very easy technology solution which i also very easily accessible to the user. Finding route location a problem –by using paper approach it becomes very hard to keep track of it and many a times it leads to the misinformation. Filtering is not easy – It becomes hard to filter relevant documents for the irrelevant ones if the count of the same crosses a certain manageable number. Reviewing becomes time-consuming – All the process done manually at the centers and all the records are maintained on the papers. So the maintenance of the record is very difficult in the departments and as well as it's very difficult for the workers to check the record. The Existing system is paper based, time consuming, monotonous, less flexible and provides a very hectic working schedule. The chance of loss of records is high and also record searching is difficult. Maintenance of the system is also very difficult and takes lot of time. Result Processing is slow due to paper work and requirement of staff. To solve these problems they required a computerized system to handle all the works. They required a Mobile based application that will provide a working environment that will be flexible and will provide ease of work and will reduce the time for report generation and other paper works.

## III. PROPOSED SYSTEM

Our cross platform application is an smart user interface with the key features such as camera feature to detect the pothole, GPS location tracker so that we can send the exact

location to the concerned authorities. Backend Machine Learning to predict and analyse data for better and efficient user Experience .In an governance context, Our app is an form of an tool for the local government to promote and provide better , smart, fast and much more accessible, and much cheap solution to connect the public issues with the conserved department and track that action is taken or not.

The process of this application is very simple it whenever on any road we encounter any pothole you just have to take a picture of that pothole using our application our app will ask for location permission allow it than it will automatically trace your current location than by taking picture simply click on send button it will send the pothole location with the picture to the desired concerned authority .

## IV. RESULTS AND FUTURE WORKS

This Mobile Application provides facility to connect end user with local government authorities . It saves time as it allows number of users to register complaint at the same time , so no need to wait for the registration of complaint . It is automatically generated by the server. Administrator has a privilege to create, modify and delete the complaints which are solved. User can register, login and give complaint with his specific id, and can track it as well.

Our solution is very easy to implement and at the same time very easy to scale . We use central cloud shared database hence it makes it easier to apply Machine Learning technologies in identifying which route is having max possibilities of potholes or which road has maximum number of complaint register so administration can take action on the concerned road contractor .Our mobile application also uses GPS service so we can track exact location . we uses modern day Machine Learning to run various analysis on the Data collected for providing better user experience

## V. USABILITY

The links are provided for each form. The user is facilitated to view and make complaints in the application. Validations are provided in each field to avoid inconsistent or invalid entry in the databases. Some forms consists Hyper Links, which provides further details. Reports screen contains text boxes and drop down lists, so that reports can be produced. Application will allow only valid users to access the system.

## VI. NAVIGATION

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hence it makes it easier to apply Machine Learning technologies in identifying which route is having max possibilities of potholes or which road has maximum number of complaint register so administration can take action on the concerned road contractor . Our mobile application also uses GPS service so we can track exact location . we uses modern day Machine Learning to run various analysis on the Data collected for providing better user experience. Our cross platform application is a smart user interface with the key features such as camera feature to detect the pothole, GPS location tracker so that we can send the exact location to the concerned authorities.

## VII. CONCLUSION

Our mobile application also uses GPS service so we can track exact location . we uses modern day Machine Learning to run various analysis on the Data collected for providing better user experience. Our cross platform application is a smart user interface with the key features such as camera feature to detect the pothole, GPS location tracker so that we can send the exact location to the concerned authorities. The development of software or website includes so many people like user system developer, user of system and the management, it is important to identify the system requirements by properly collecting required data to interact with supplier and customer of the system. Proper design builds upon this foundation to give a blue print, which is actually implemented by the developers

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