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Public Complaint Sorting for Smart City using Image Processing

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Abstract: Now days, Complaint any Civic or day to day life problems is a difficult process for the citizens. They have to do a long procedure and formalities to register their problems or to report such problems like street damages, garbage management problems, Electricity problem etc. in short citizens can Upload their problems which come under the surveillance of munici-pal. Usually because peoples are very busy with their day to day work and they don't have time to register the complaints and to follow the time consuming process. To make an easy reporting system for complaining procedure, we are going to implement an machine learning online web application that will provide a platform for citizens report their problems with infrastructure in their city to relevant municipal department.

Keywords: CNN, Transfer Learning and Image processing.

I. INTRODUCTION

To improve Infrastructure and condition of our city and to make people take initiative to rise their voice against civic issues which they face into their daily life we are developing this system. Which will help to build a unity or strong bond within citizens. System is providing platform for citizens where they can report problems. It will be helpful to collect valuable source as feedback from citizens about progress improvement of city through the different posts or images posted by citizens. System is using the hierarchy of different level of authority like user level then departments and their authorities, this will be more effective to keep the track on each and every work related to civic issues posted by citizens. To develop this system we use machine leaning and image processing.

II. LITERATURE SURVEY

In this paper A model of potholes is constructed using the image library, which is used in an algorithmic approach that combines a road colour model with simple image processing techniques such as a Canny filter and contour detection.[1]

K-means clustering based algorithm is adopted for pothole detection. Therefore, the attempt is made to invent an auto-mated driver guidance mechanism to make the driving safe and easier in Indian roads. The experimental results obtained are tested with real time image database collected across different roads in sub-urban areas in India and found satisfactory.[2]
In this paper proposes IoT stationed smart waste segregation and management device which detects the wastes in the dust-bins with the aid of using Sensor devices and Image processing algorithm is used to identify the plastics and degradable items and is separated to another separate sections.[3]

In this paper, the automatic design of CNN for HSI clas-sification is proposed for the first time. The automatically designed CNN's achieve better classification accuracies com-pared with the state-of-the-art deep learning models, including CNN, RNN, 3-D CNN, and SSRN, which were designed by human experts.[4]

This paper focuses in the designing of a simulation tool called SimulCity to overcome the complexity of designing a smart city communications network, where numerous and heterogeneous devices compete for a limited bandwidth.[5]
This paper investigates the basic theory and implementation approaches of SVM. SVM is a convex optimization problem; thus, its local optimal solution must be its global optimal solution, which is beyond the capability of other learning algorithms.[6]

III. METHODOLOGY

This system focuses on flexible communication between citizen to respective municipal department. An implementation of web application in which there will be the flexible communication so that each and every citizen can register their complaint against various civic issues with the least manual interference. This application gives many

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to one communication bond between people. Through this website citizens can register their civic complaints in very flexible way within less time.

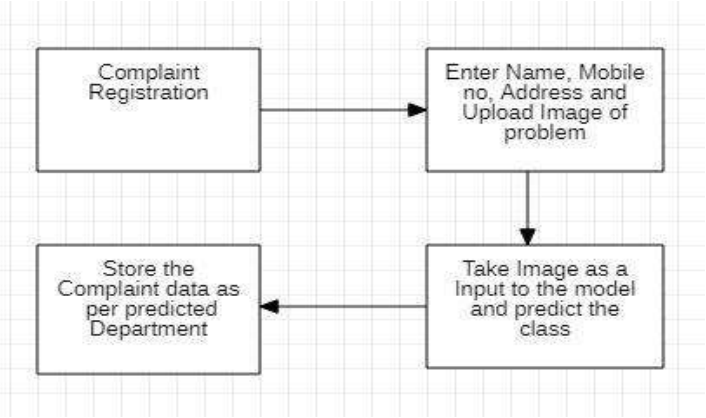

Fig. 1. Block diagram of system

In Fig. 1. Firstly if citizen wants to complaint regarding civic issue then he/she has to visit web portal and then he/she can register the complaints. During complaint registration he/she has to enter his/her details like Name, Mobile number, Address, image of problem and short problem description etc. When any citizen posts complaints regarding any civic issue than that complaint goes to the particular department using machine learning and image processing. Then authority of that particular department can view all the complaint and starts to resolve that as early as possible. So ultimately by this way citizens will be increase the major to minor civic issue will be resolved within the time and each and every citizen can raise their voice against the civic issue with the least manual interference and within less time.

This system also decreases the overhead of sorting com-plaints for municipal departments. They don't require specific unit to classify the complaints according to the departments which gets register by citizen's. Also, citizen's can see the progress or development of cities in home and gallery menu of web portal.

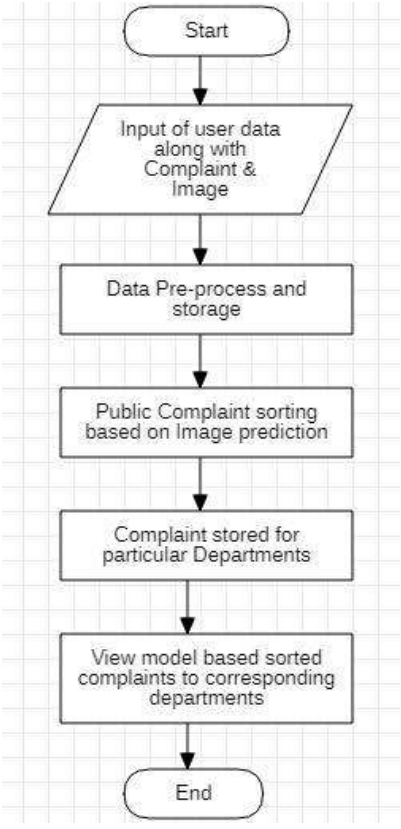

Fig. 2. System working Data Flow

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In Fig. 2. Firstly if citizen wants to complaint regarding civic issue then he/she has to visit web portal and then he/she can register the complaints. During complaint registration he/she has to enter his/her details like Name, Mobile number, Address, image of problem and short problem description etc. When any citizen posts complaints regarding any civic issue than that complaint goes to the particular department using machine learning and image processing. Then authority of that particular department can view all the complaint and starts to resolve that as early as possible. So ultimately by this way citizens will be increase the major to minor civic issue will be resolved within the time and each and every citizen can raise their voice against the civic issue with the least manual interference and within less time.

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IV. IMPLEMENTATION

In GUI we have complaint registration form and department login view. In which the particular department can see their complaints.

Fig. 3. User Complaint Registration

Fig. 4. Department Login

V. RESULT

This system is implemented in python 3 under PyCharm and Flask server.Testing is done on local machine. The proposed System is tested on various Images and every time it yielded acceptable results. System was tested on fig-4 and fig-5 image and system classified them correctly.

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Fig. 5. Potholes image tested on model

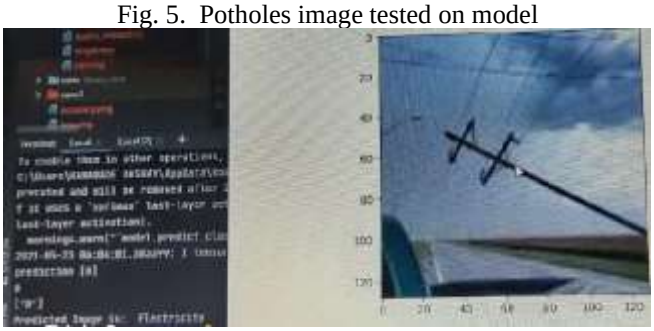

Fig. 6. Potholes image tested on model

VI. CONCLUSION

In this Project, an effective implementation for Image Classification and Machine Learning concept is used for solving Citizens problem. Image classification is performed using ResNet and Inception based Algorithm. In this we propose one application using machine learning and image Classification in which citizens can register or post their civic issues online and they can also have assure that their problem will be resolved.

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