NOVEL DEEP LEARNING MODEL FOR TRAFFIC SIGN RECOGNITION AND DETECTION USING CNN

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ABSTRACT

In today's world, the accident rate due to negligence of observing traffic signs and not obeying traffic rules has been increasing drastically.

This method which we are developing is used to detect traffic signs under different view-light conditions.

The purpose of this project is to provide an efficient method for detection and recognition of traffic signs in India

EXISTING SYSTEM

- One of the oldest works is based a color processing system and later a contour matching method is made to provide road sign extraction

- In different aspects traffic sign recognition can be categorized in oldest work one is Support Vector Machines (SVMs) and other is (LFC) learned features classification methods.

PROPOSED SYSTEM

The framework we proposed is categorized into three stages:
1.Detection 2. feature extraction
3. recognition.

This is accomplished with the assistance of "Convolutional Neural Network“ algorithm which classifies the image into sub classes.

SOFTWARE AND HARDWARE REQUIREMENTS

SOFTWARE REQUIREMENTS:

FRONTEND:

1.PYTHON software(pycharm)

2.OPEN CV

BACKEND:

1.KERAS

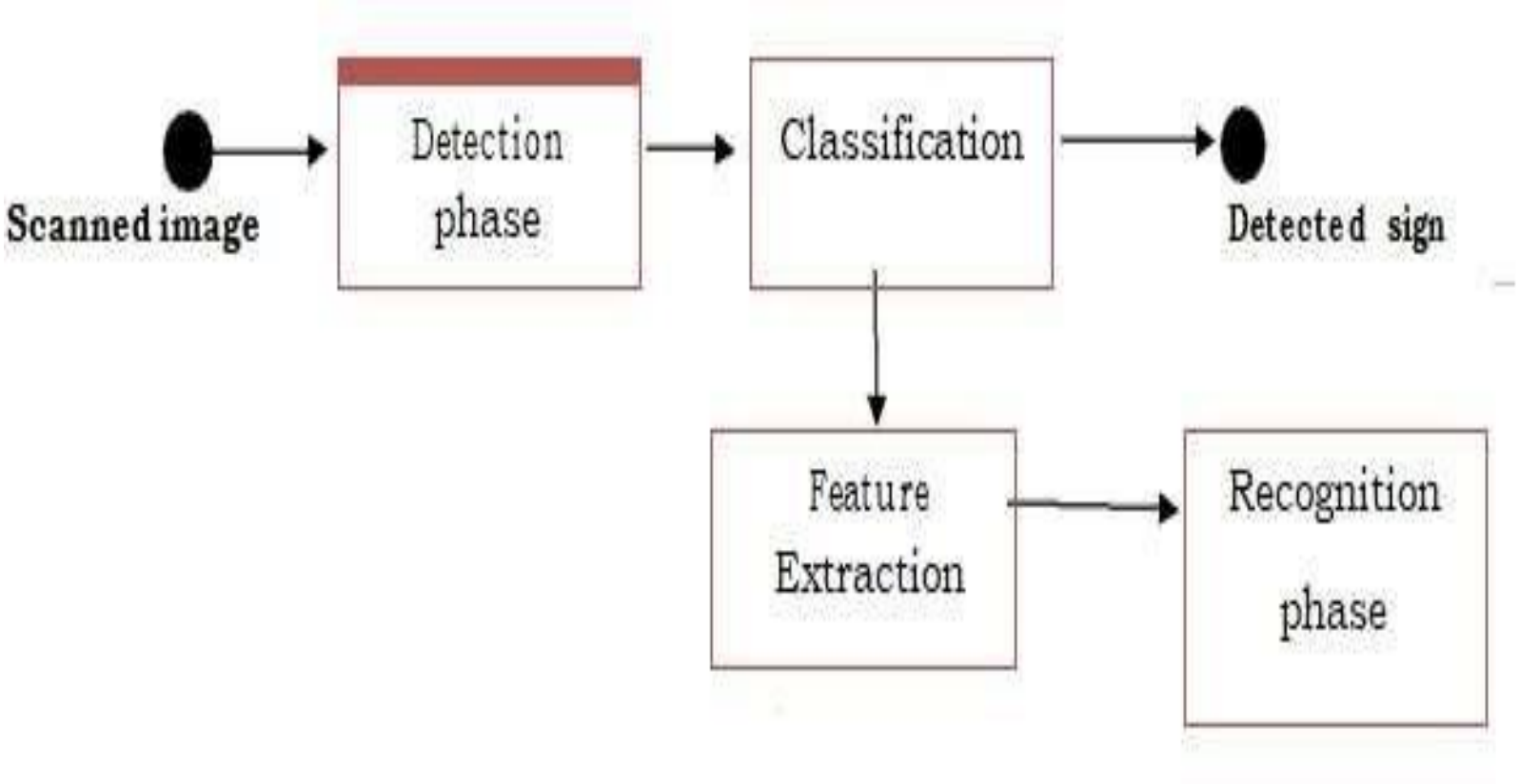
2.TENSARFLOW

HARDWARE REQUIREMENTS:

1.LAPTOP/PC WITH RAM 8GB

2.NIGHT VISION WEB CAMERA

ARCHITECTURE



MODULES

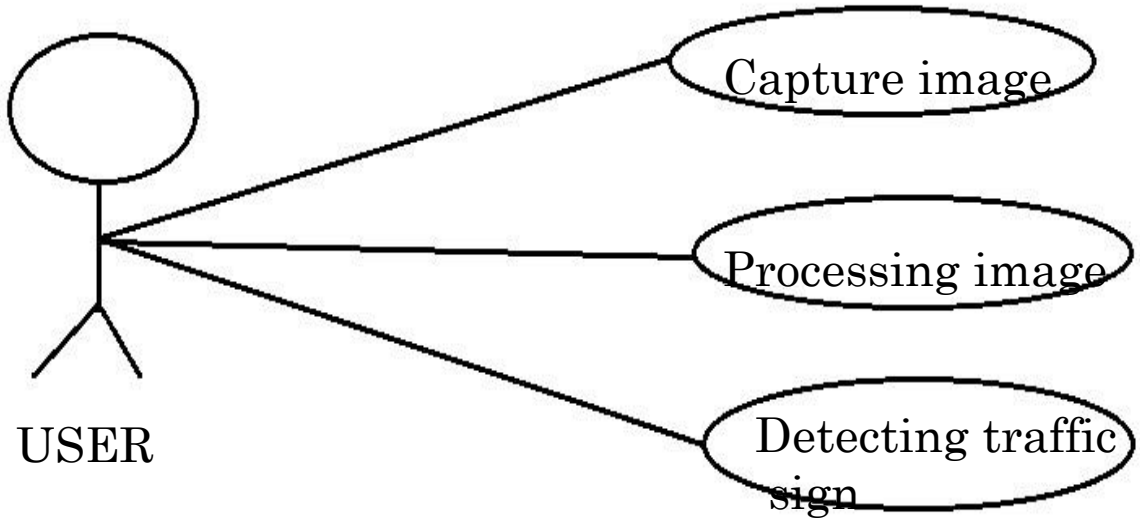
- It consists of two main moules:

1.Road sign detection.

2.Classification and recognition.

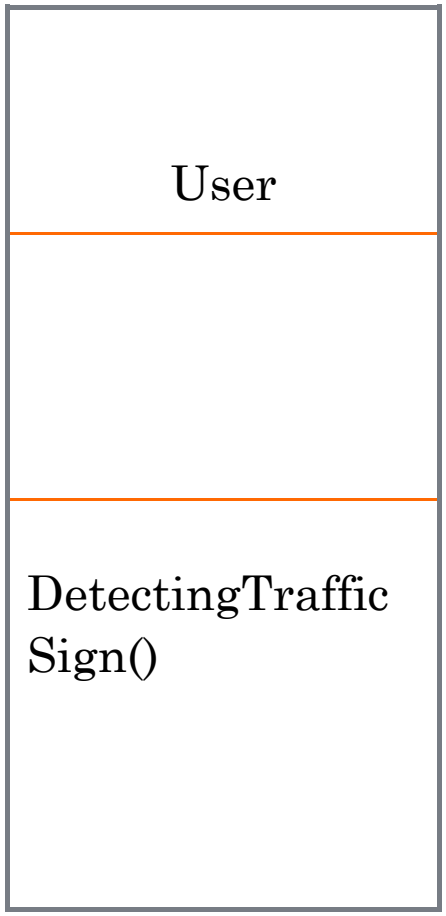
UML **DIAGRAMS**

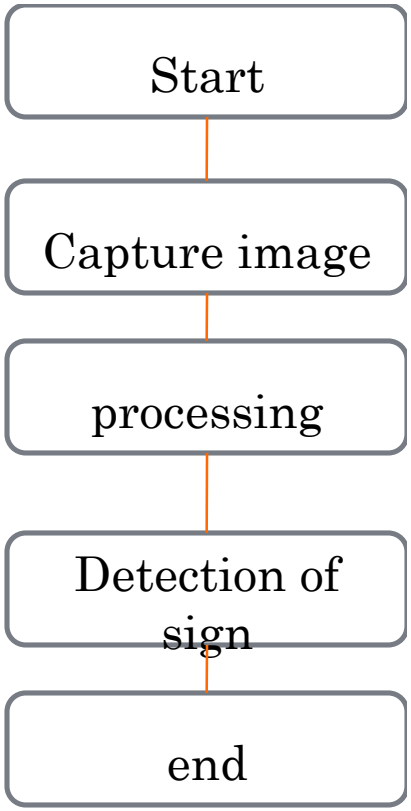
USE CASE DIAGRAM



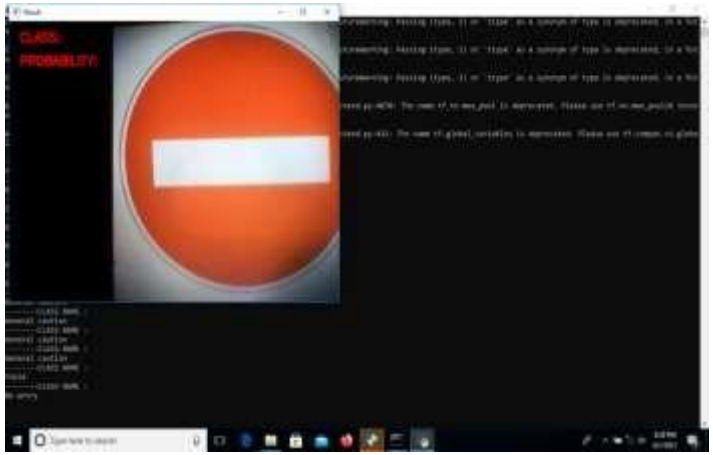
USE CASE DIAGRAM

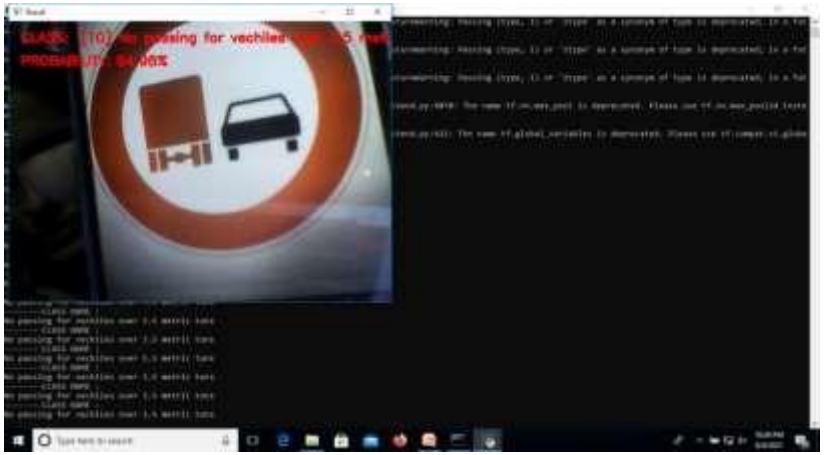
CLASS DIAGRAM AND ACTIVITY DIAGRAM

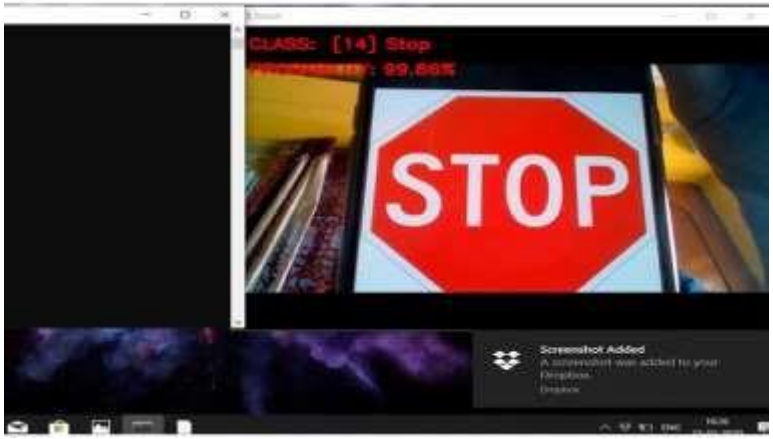

User
DetectingTraffic
Sign()


Start
Capture image
processing
Detection of
sign
end

OUTPUT SCREENSHOTS








CLASS: [19] Dangerous curve to the left


CLASS: [1] Speed Limit 30 km/h
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CONCLUSION AND FUTURE ENHANCEMENT

The model proposed in this paper does bring us a step closer to achieving the ideal Advanced Driver Assistance System or even a completely driverless system. There will be a problem if there is a reflection on the sign which impacts its color . Similarly, if the sign is chipped or cut off, the shape of the sign is impaired, thus resulting in no detection of the sign.

Our algorithm is continuous in detecting the signs which leads to detecting signs even there are no signs in the area, which leads to continuous flow of output.

REFERENCES

M. Creusen, R. G. J. Wijnhoven, E. Herbschleb, and P. H. N. de With. “Color exploitation in hog-based traffic sign detection.” In IEEE International Conference on Image Processing, 2010, pp. 2669-2672.

Y. Xie, L. F Liu, C. H. Li, and Y. Y. Qu. “Unifying visual saliency with HOG feature learning for traffic sign detection.” In IEEE Intelligent Vehicles Symposium, , 2009, pp. 24-29.

Any queries?
THANKYOU