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# Intelligent Transport System

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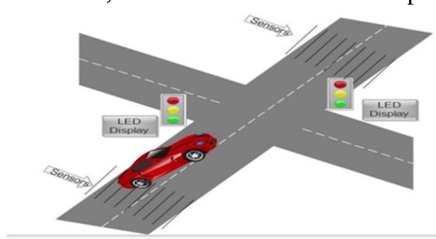
***Abstract: Due to increase in population there is a need for more transportation system. Because of the current system the traffic flow has greatly increased. Here we propose an intelligent traffic prediction system that captures continuous images of the traffic flow using it device and from the images we obtain the features to train the system using the stacked auto encoder model along with the spatial and temporal correlations. A stacked auto-encoder is used to learn generic traffic flow features and it is trained in a greedy layer wise fashion.***
***Keywords: Micro controller, sensor, LED display Traffic light, encoder model ,spatial and temporal correlations.***

## I. INTRODUCTION

Accurate and timely traffic flow prediction is currently needed for individual travellers like business people and other government agencies. The objective of traffic flow prediction is to reduce the congestion from occurring and efficiently control the traffic without any help of man power. It is one of the most important element for the successful deployment of the intelligent transport sub systems. Traffic flow prediction heavily depends on the historic and the real time data. From various sources like sensor, camera, maps , social media, people sourcing etc. Recently, deep learning approach, a type of machine learning method has produced a lot of academic and industrial interest. In this approach it uses multiple-layered algorithms to fetch data and predict the traffic flow based on the layer wise data fetched.

The document specifies the architecture of communications in intelligent transport system (ITSC) supporting a variety of technologies and ITS applications.

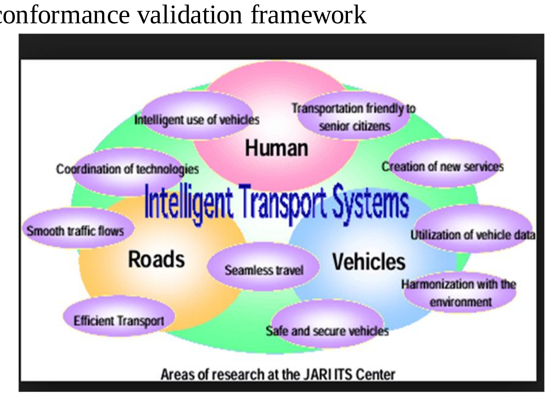
ITSC is a large extent of independent forms of specific communication technologies and specific ITS applications. The ITSC architecture is intended to be open systems architecture, i.e. an architecture that is open and not proprietary.




The process done here is based on the implementation of ITS standards by:

Making good availability of test products and future enhancements for the same product makes it unique.

Processing the conformance validation framework against real time Implementations under practice test from industry and providing the companies an eligible working reports of their implementations. During the lifetime of this action, the conformance validation framework was provided at ITS Cooperative Mobility Services Interoperability events. Releasing software as open source, it allows the industry to run and build their own conformance validation framework



Areas of research at the JARI ITS Center

The architecture of this test platform was designed with respect to the following constraints:

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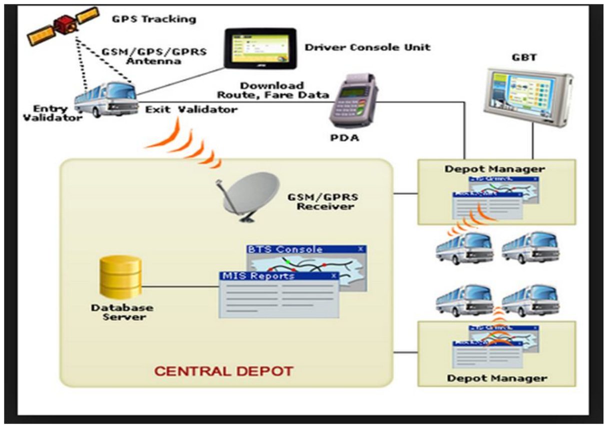
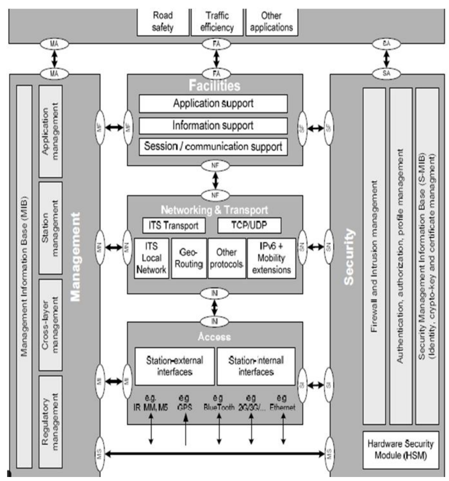
To be compatible with the requirements
Needed for completion of process
To be independent of the platform used to implement the test system
To be independent of the TTCN-3 used
To be configurable and customizable
To provide tools and well defined interfaces to system under test (SUT), allowing test automation
To be easily favorable for future implementation process protocols
To provide common components that can be reused in other test platforms.

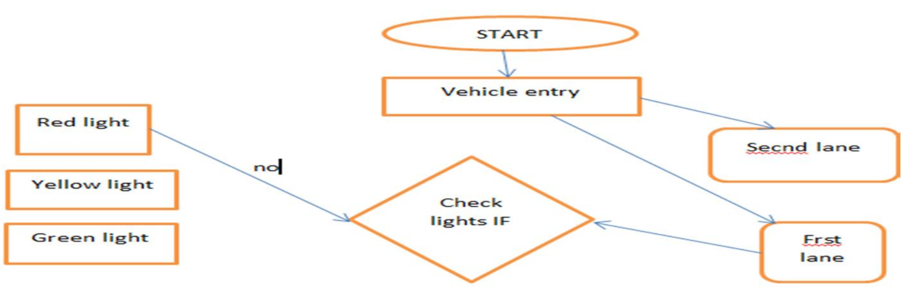



*A. Classes of Applications*

ITSC standards shall be designed to support multiple classes of ITS applications including those supporting vehicle operations. Dependent on how much the applications rely on the communication service application classes impose more or less stringent requirements on ITSC, with respect of latency , security and other parameters.

## II. RELATED WORK



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Step1: Initially both sides of the lane will have red signal light.

Step2: Based on the vehicle entry on one lane first it will check the signal light available on the other lane.

Step3: If (Red Signal)

{

First Lane: Green Signal Timer (Initialized)

}

Else

{

Second Lane: Red Signal Timer (Increased)

}

Step4: If (Green Signal)

{
First Lane: Red Signal Timer (Increased)

}

Else

{

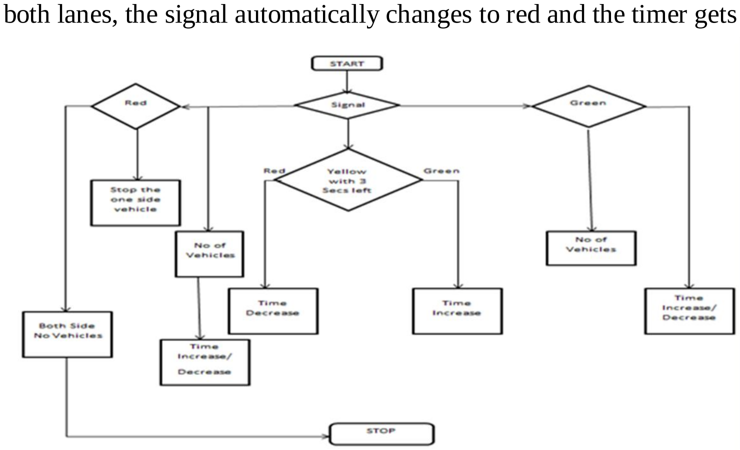
Second Lane: Green Signal Timer (Extended)

}

Step5: Timer display will be based on the number of vehicles present in the current lane.

Step6: Yellow Signal will be displayed at last 3 sec, if it is going to be red signal the timer is decreasing, else green signal means the timer is in Increase.

Step7: If there is no vehicle in both lanes, the signal automatically changes to red and the timer gets shut down.



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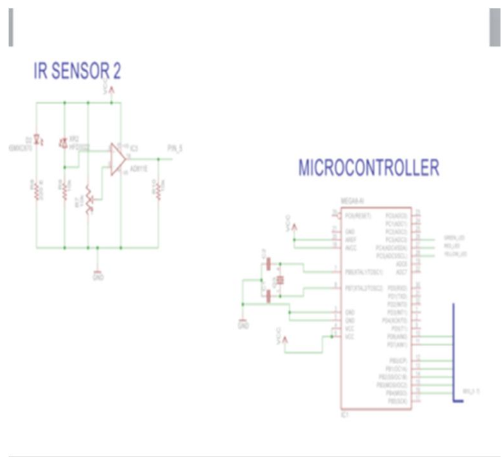
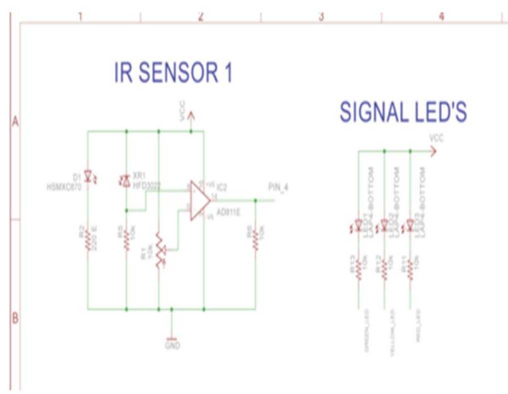
## III. BENCH MARKS

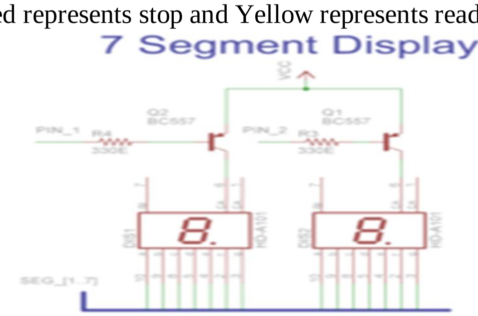
In this section we describe the benchmark (datasets) that we consider in this work the major features of each one and in the following we describe their details.




The microcontroller is heart of the process occurring. It counts the objects detected based on the count it sends data to the timer display and accordingly the LED lights are altered. Once the timer expires it automatically changes the lane and the process is repeated again. The other hardware like camera which captures the real time occurring at that instance and store it in a hard disk or a storage device. By using this method future prediction can be done on places where the traffic seems to be high.




IR Sensors are used to detect any object that passes through the continuous beam of rays emitted .the detection occurs only through the perpendicular direction. The signal LED s is used to notify the lights of colours which has different purpose of its own. The Green represents the vehicle can move, Red represents stop and Yellow represents ready.




Segment Display has 8 data lines including the dot present in it. Timer data are controlled through fetching data from the

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microcontroller by control lines. The data lines are common because two similar displays are used in this process.

## IV. METHODOLOGIES

*A. Existing System*

Traffic data have been exploding and we are in a situation where the era of big data for transportation has become more tedious to handle.

Existing traffic flow prediction methods mainly use no proper traffic prediction models and are still not applicable for many real-world applications.

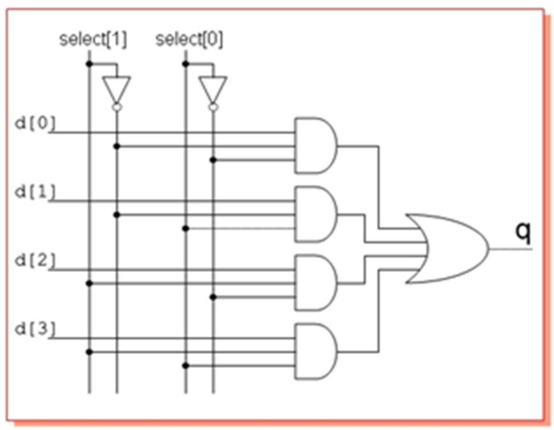
This situation makes us to rethink the traffic flow prediction problem based on deep architecture models with big traffic data

*B. Proposed System*

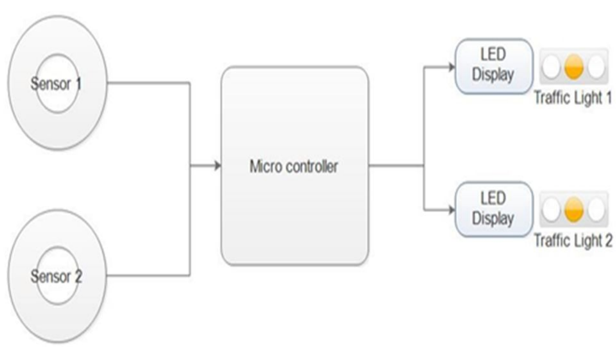
Traffic flow is predicted based on the vehicle entry and by the use of an IOT device , traffic signal lights it is managed more efficiently for a single lane. Usage of hardware to capture the real time happenings and storing them for future predictions.

Traffic flow prediction is used to reduce the traffic and identify the overflow. Its also used to identify the any malicious action and send the information to all centers

*C. Modules*




The problem that will occur while processing the Timer display will be the data lines present in the display. Since, totally 16 Data lines are present but the output obtained will be of only 8 Data lines. A multiplexing technique is used were the high number of inputs given are combined with similar Data inputs and from that a multiplexed output is obtained, that output data is sent to both the Display present




## V. ACKNOWLEDGEMENT

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## REFERENCES


[1] N. Zhang , F.-Y. Wang, F. Zhu, D. Zhao, and S. Tang, " Dyna CAS: Computational experiment and decision support for ITS," IEEE Intell. Syst, vol. 23, no. 6, pp. 19–23, Nov/Dec. 2008.

[2] J. Zhang et al., "Data-driven intelligent transportation systems: A survey," IEEE Trans. Intell Transp. Syst., vol. 12, no. 4, pp. 1624–1639, Dec. 2011.

[3] C. L. Philip Chen and C.-Y. Zhang, "Data-intensive applications, challenges, Techniques and technologies : A survey on Big Data," Inf. Sci., vol. 275, pp. 314–347, Aug. 2014.

[4] Y. Bengio, "Learning deep architectures for AI," Found. Trends Mach.Learn, vol. 2, no. 1, pp. 1–127, Jan. 2009.

[5] G. E. Hinton and R. R. Salakhutdinov, "Reducing the dimensionality of data with neural networks," Science, vol. 313, no. 5786, pp. 504–507, Jul. 2006.

[6] R. Collobert and J. Weston, "A unified architecture for natural language Processing : Deep neural networks with multitask learning," in Proc. 25th ICML, 2008, pp. 160–167.

[7] I. J. Goodfellow, Y. Bulatov, J. Ibarz, S. Arnoud, and V. Shet, "Multi-digit number recognition from street view imagery using deep convolutional neural networks," arXiv preprint arXiv: 1312.6082, 2013.

[8] B. Huval, A. Coates, and A. Ng, "Deep learning for class-generic object detection," arXiv preprint arXiv: 1312.6885, 2013.

[9] H.-C. Shin, M. R. Orton, D. J. Collins, S. J. Doran, and M. O. Leach, "Stacked auto-encoders for unsupervised feature learning and multiple organ detection in a pilot study using 4D patient data," IEEE Trans. Pattern Anal. Mach. Intell., vol. 35, no. 8, pp. 1930–1943, Aug. 2013.

[10] M. S. Ahmed and A. R. Cook, "Analysis of freeway traffic time-series data by using Box–Jenkins techniques," Transp. Res. Rec., no. 722, pp. 1–9, 1979.

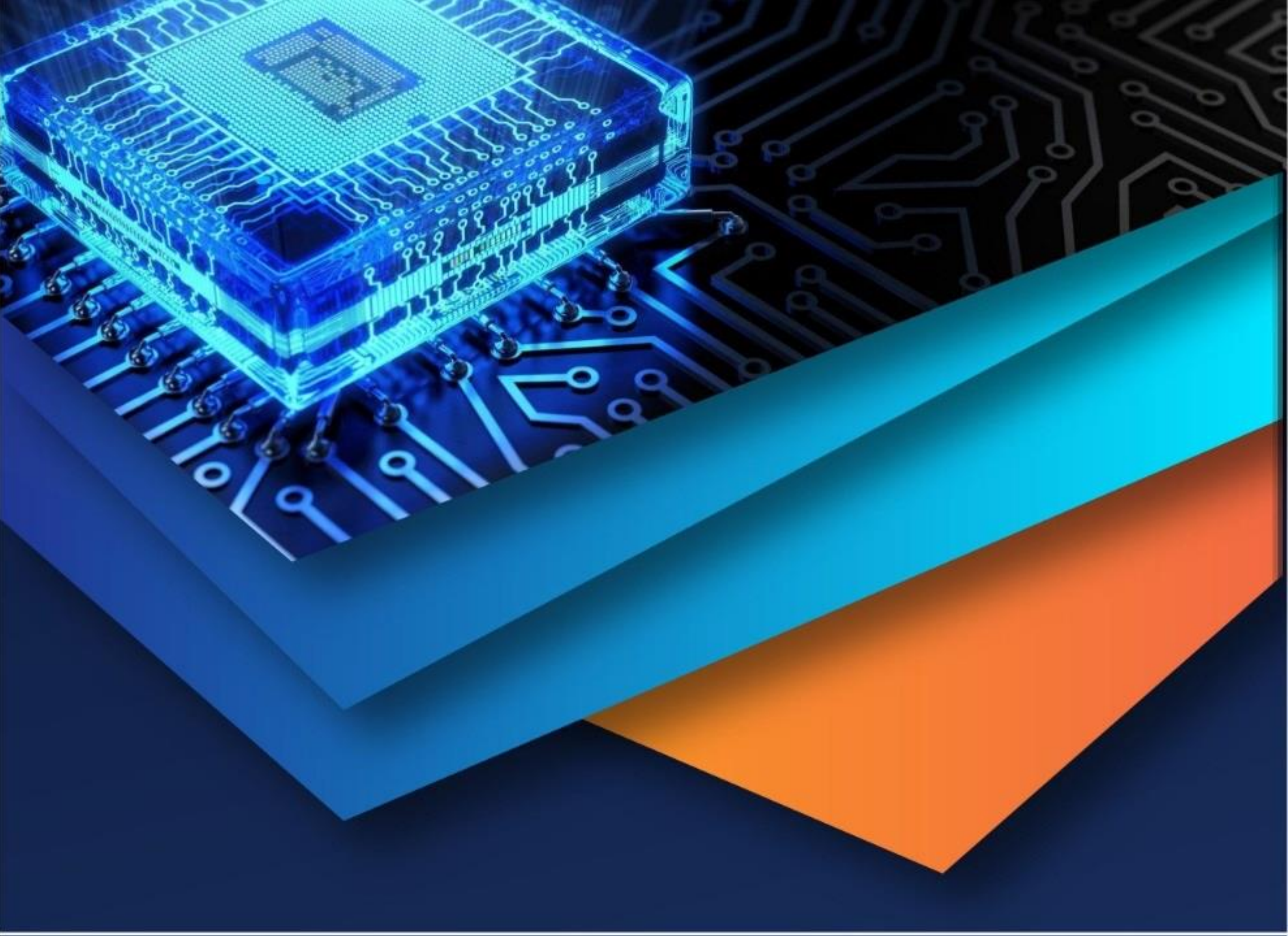
[11] M. Levin and Y.-D. Tsao, "On forecasting freeway occupancies and volumes," Transp. Res. Rec., no. 773, pp. 47–49, 1980.

[12] M. Hamed, H. Al-Masaeid, and Z. Said, "Short-term prediction of traffic volume in urban arterials," J. Transp. Eng., vol. 121, no. 3, pp. 249–254, May 1995.

[13] M. vanderVoort, M. Dougherty, and S. Watson, "Combining Kohonen maps with ARIMA time series models to forecast traffic flow," Transp. Res. C, Emerging Technol., vol. 4, no. 5, pp. 307–318, Oct. 1996.

[14] S. Lee and D. Fambro, "Application of subset autoregressive integrated moving average model for short-term freeway traffic volume forecasting," Transp. Res. Rec., vol. 1678, pp. 179–188, 1999.

[15] B. M. Williams, "Multivariate vehicular traffic flow prediction— Evaluation of ARIMAX modeling," Transp. Res. Rec., no. 1776, pp. 194– 200, 2001.

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