Proceedings of Second Shri Chhatrapati Shivaji Maharaj QIP Conference on Engineering Innovations
Organized by Shri Chhatrapati Shivaji Maharaj College of Engineering, Ahmednagar
In Association with Novateur Publications JournalNX-ISSN No: 2581-4230
February, 22nd and 23rd, 2019

A Review on Enhancement of IoT devices for Traffic Management System

Mr.Ameya K. Kulkarni *Department of Electronics and Telecommunication* SCSMCOE,Ahmednagar Ahmednagar,Maharashtra akkulkarni2000@gmail.com

Ms.Deepali A.Ghanwat

Department of Electronics and Telecommunication SCSMCOE,Ahmednagar Ahmednagar,Maharashtra ghanwat.deeps@gmail.com

***Abstract*— in a new era in a new era, Traffic has drastically enhanced in metropolitan cities. traffic leads with growth in air and noise pollutants, motion time and fuel wastage and plenty of others.The serious trafic congestion that causes signal disasters, injuries etc. this stuff have an effect on to economic expenditure, changes in approach of lifetime of humans and plenty of others. Internet of things will assist in clean implementation of Traffic congestion control system. Essentially the design is split into modules in conjunction with WiFi Sensors, video process, IoT device Security**

Keywords— Wifi Sensors, video processing, IoT device Security

I. INTRODUCTION

The primary motive of IoT is to modify the day to day life of humans. IoT refers to devices that embrace all of the physical things around us and their communication with one another over the internet.This communication method will be analyzed to get vital analytical results.

The metropolitan areas of India serious traffic jam causes the incidents like accidents or shock breaking of a vehicle creates serious traffic have moving ridge results and cause traffic jams. In India an annual lack of Rs 60 crores thanks to congestion (including fuel wastage). Congestion in India has to boot caused slow speeds of vehicles, and distended trip waiting time at checkpoints and toll plazas.

The average speed of vehicles on key corridors like Mumbai-Chennai, Delhi-Chennai is less than 20kmph, while it is mere 21.35kmph on Delhi-Mumbai stretch. As per the transport agency of India and IIM, India's freight quantity is growing annually at a fee of 09.08% and that of motors at 10.76%, but that of road is handiest with the aid of 4.01%.

This has resulted in reduced street area in accordance with the wide selection of general vehicles. [1] the choice to enhance the traffic management in India is IoT which providesthe answer like sterilization the traffic signals and by providing the traffic jam info to vehicle driver which can facilitate to scale back the congestion. [2]

II. LITERATURE SURVEY

The traffic Management System using IoT platform gives an beterment in traffic congestion scenario. The Internet of Things firstly introduced by Kevin Ashton [2].The Approach towards the traffic management is disscussed in subpoints

A. Video Data Procesing

Video knowledge analysis system includes of video camera or sensors, oral communication and an important pursuit station. Traffic is steady monitored the usage of the camera and therefore the video is then transmitted to primary watching station once compression.

In a few eventualities there is also actual time transmission of video between cameraand valuable pursuit station. This video analysis facilitates in computing vehicles facts like average speed of vehicles, frequency of vehicles, lane occupancy etc. [2] Video analysis can also collect fine however to attain such an high security creates high opportunity cost, high operation and maintenance value etc.

The system lacks because of significant fog, rain and

getting dark.The solution on this can be to use advanced vision camera which is able to price additional then regular system price.

B.Wireless Sensor Network

Wireless sensor network (WSN) consists of Three main components: gateways, nodes, and code. The spatially scatter activity nodes interface with the sensors to watch assets or their surroundings.The noninheritable information is wirelessly transmitted to the gate way, that provides a globally wire association, wherever you'll collect, analyze, procedure and send your activity information mistreatment the code. Routers are one amongst in every of the sort of dimension node that we will use to expand the gapand responsibility in a WSN. Sensors may be scattered on the roads, vehicles, hospitals, buildings, individuals and permit dissimilar applications like medical services, battlegroundoperations, disaster response, disaster relief and environmental observance.

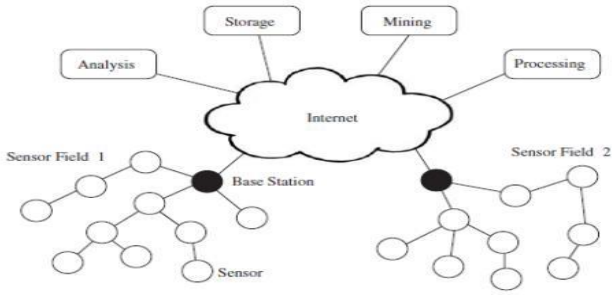

Fig. Wireless Sensor Network [7]

A. ***Sensor types***

- ***Infra red Sensor:***

IR detector comes with set of transmitter and reciever and by victimisation each the detection of nearest vehicle is feasible. The transmitter emits the waves through airand within the presence of object the waves can mirror and received by the receiver.

The received signal detected by an electronic equipment which is able to inform the motive force regarding the presence of the article.This will shield the collision of two vehicles.

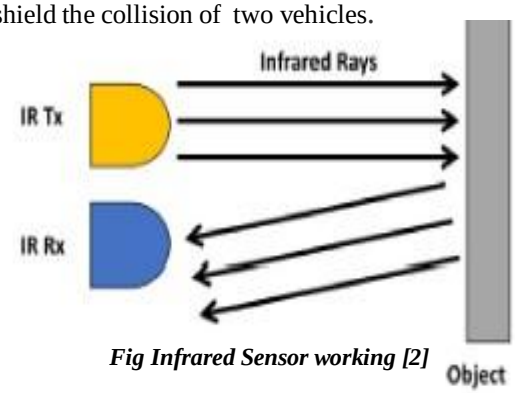

Fig Infrared Sensor working [2]

- ***Radio Frequency Identification:***

It is termed as oftenness identification because it uses radio waves for object identification. It's not a line of sight technology. Multiple objects is detected through this technology. RFID system chiefly consists of RFID reader and RFID Tag. RFID tag is connected to the item. The RFID reader is ceaselessly causation radio waves. Whenever a RFID tag comes within the locality of radio waves, it sends a feedback signal to RFID reader.

This feedback signal contains the knowledge contained within the RFID tag. Sorts of RFID tags – Active and Passive. Active tags have a frenzied battery for themselves whereas as passive tags doesn't. Passive tags get their needed power from the radio waves sent by the RFID reader. Non-volatile memory is usually used for storing tag info. RFID is extensively used for traffic observance, parking management moreover as toll assortment.

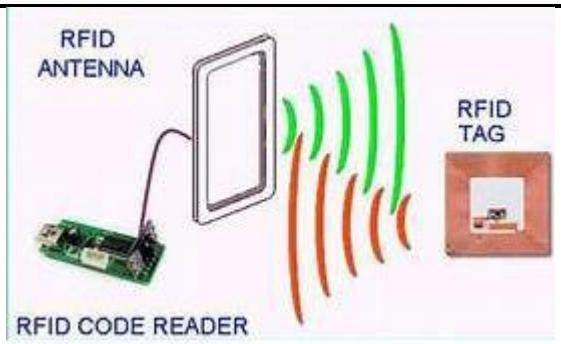

Fig RFID Communication System

B. ***Raspberry Pi***

Raspberry Pi was essentially introduced in 2006. Its main idea is predicated on Atmel ATmega644 whichs is especially designed for instructional use and supposed for Python. A Raspberry Pi is of compact size i.e., of a mastercard sized single board laptop, that is developed within the U.K by a foundation referred to as Raspberry Pi. The mostshibboleth of this foundation is to push the teaching of basic computing within theeducation institutes and conjointly in developing countries [6].

Fig Raspberry Pi [6]

III. TRANSFER OF INFORMATION IN IOT

COMMUNICATION WITH CLOUD COMPUTING

Parameter	Internet of Things	Cloud Computing
Big Data	Acts as a source for big data	Acts as a way or a means to manage big data
Reachability	Very Limited	Far spread ,wide
Storage	Limited or almost none	Large ,Virtually never ending
Role of Internet	Act as a point of convergence	Acts as a means for delivering services
Computing Capabilities	Limited	Virtually unlimited
Components	Runs on Hardware Components	Runs on virtually machines which imitate hardware components

Table: IoT Vs Cloud Computing [8]

IV. IOT DEVICES AND SECURITY

Wireless communication typically compromises on cyber security. Dedicated communication link between a transmitter and a receiver will increase the price and time of installation of system. However it will escort an additional advantage of cyber security. Wireless device network has weaknesses like encrypted radio signals, industrial plantdefault username and arcanum utilized by network devices etc. this allows any interloperto manage intelligent stoplight system for theirpersonal gain or will cause traffic jam. Implementation of cloud server for information storage will give 3 levels of security – device security, affiliation security and cloud security [2].

V. CONCLUSION

It is seen that exploitation IoT for traffic management system will address traffic effectively.IoT will enhance the potency of knowledge transmission, traffic observance and management. This can augment vehicle potency, cut back trip times, cut

back fuel wastage and guarantee value effectiveness. It may also give higher priority to emergency vehicles [2]. It ought to be clear that from the survey of existing system and planned system. IoT is healthier technology for traffic management system. It is ease to access.We envision that each one traffic management system ,cyber physical system generally,will take the shapeadmire today's IoT

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