IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 9, Issue 5, May 2020

Bus Depot Management in A Smart Way: A Novel Method to Avoid Manual Entries and Emergency Notify During the Accident

Kiran. P. S[1], Varun. K. S[2], Irshad Jabeen[3]

P.G Student, Department of Studies and Research in Computer Science, Davanagere University, Davanagere, India[1,2,3]

Abstract: The new era of 5G will bring together improves connectivity of the devices and sensors. The centralized database to take care of all the transactions carried out in the depot. Based on the architecture of depot, is required to design a suitable database to manage all the records and it is easy to use the interface with all validation rules have to be design, nowadays security systems are more advanced can be implemented. A centralized database has developed to monitor the transaction of the depots. Each depot activities has to manage by respective divisional manager. Depot manager can able to view all the depots activities in fingertips. It is an android application developed to provide the smart interaction between the employees about transactions carried out at the bus depot. The details of the bus such as bus route, bus spares, maintained washing facilities, bus parking area, bus refuelling, internal cleaning, and supply of the buses with pressurized air, arrival and departed of buses from depot. The daily revenue collect from each buses is maintain along with drivers and conductors through an application. The target use of this application is to avoid malpractices and paper-pen concept. So, helps employees of bus depot to get required advantages and information on few clicks.

Keywords: Depot, Ledger, Manual entries, Database, Devices and Sensors, Digitalization

I. INTRODUCTION

In today's world increases in population, government offers public to use public transportations to travel from one place to another rather than using private vehicles more, due to balance the environmental pollutions and country economy. Public transportations helps to decreases pollutions and increases country economy that maximum peoples can travel at a time in a vehicle. Among one of the public transportation is BUS. Buses travel within the cities, villages helps to travel the peoples with affordable rate. Bus can have a capacity of 50 to maximum of 300 passengers. Due to increases in populations in developing countries, the vehicles are need more.

Responsibility and maintenances of buses take care by depot is manage through pen-paper called 'Ledgers'. According to some of the survey in every year bus are increasing, this leads complexity in maintaining depot through ledger is hard. Searching and retrieving of bus or employee information consumes more time, if any accident of bus occurs police inspection and replacement of bus/driver/conductor from depot is delay in existing manual system. Admin (depot manager) inspect the arrival/departure of buses with a condition and mileage, manager advice the field technicians in the case of a bus breakdown with the problem and location of impact bus. To maintain the record increases in ledger size and inaccuracy, delay. Technical charge man look over the new entries of buses, mange fuel, spares, technical issues and Traffic inspector take care the records of mechanical employees, drivers, conductors schedule, allotment, attendance, daily revenue collection, notification, spares through ledger. Because of this reasons it affects to the employees of depot as well as public and consumption of time in developing countries.

The major ideology of this application helps to depot employees to quicker and accuracy their work in a smart way. Technical charge man and Traffic inspector can register through their basic credential along with the required information's with respect to this application. While using this application Technical charge man and Traffic inspector can register successful according to the required information's Depot manager (admin) can verify the registered user with their data and uploads, after verifying admin given transaction and data entry rights to registered user. LAN connects three units within the depot. So this helps in depot for secured – free from theft, High-speed even in an integrated wired and wireless environment, low cost. In manual system, the traffic inspector has to maintain a ledger for attendance of conductors, drivers daily and if any accident occurred, there was a manual procedure to complain police and depot through some form leads to delay, so it is a disadvantage of this system.

Proposed application provide an android app to the drivers and conductors of the depot and traffic inspector monitors this application. Daily attendance and schedules done through android app. By using biometric, provided in the app that employee can put an attendance and schedules are send to their personal app account from traffic inspector before an hour. Even employees can apply their leave before a day through android app and request of leave can sanctioned left

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 9, Issue 5, May 2020

to traffic inspector, so this gives more security to registered drivers and conductors. Along with this, we can avoid the arguments between employees for daily attendance and schedules, Salary updates also done through android app. The major keyword used in this application is Emergency, notify, defines if the Bus committed accident then this key button helps to driver to notify through SMS to Depot with registered mobile number and nearest police station and police will reach the spot using GPS within a short period. In order to maintain this application, driver can monitor all the activities through this app without visiting to the police station and depot.

II. EXISTING SYSTEM AND PROBLEM DEFINATION:

Fig 1: Data entries through ledger.

At present in the bus depot, all the details and schedules of drivers, conductors and buses are maintain regularly by using ledger. Identification of spare buses, drivers, conductors in the depot by physical search. It takes lot of time for updating and it leads to problem in the bus depot. The daily revenue collected from conductors of each bus by admin recorded in ledger, if any differences in numbering of revenue leads to great problem and it affects the economy. Traffic inspector has to record bus number, driver and conductor allocated for a bus, root of the bus, date and timings of the bus arrival/ departure from the depot done through manually and physically, and there is no proper schedule for drivers and conductors with bus number a day before or an hour. In existing system, traffic inspector look over the physical presence of the employee in the depot and by orally traffic inspector allot them with bus and route. That consumes more waiting time to record things, and increasing in size of ledger book. In addition, attendances of all the employees through ledger and permission for leave by oral. That leads complexity, employees cross check their attendance by visiting traffic inspector office, that creates a quarrel because salary payments depends on number of days that employee attend to work. Technical charge man add / drop the details of the buses, employees and he has to look over the fitness of the buses, maintains of the spares, check for fuelling before daily scheduling of the bus, at any condition in the depot there must be at least 3 to 5 spare buses for emergency replacement. All these work of technical charge man done through physically and maintains records through ledger. In the case of existing system, at travelling of a bus committed with any mechanical issues they has to replace bus from nearby depot from spare buses, and that bus issue in problem will repair there itself or get to depot with their comfort and condition of bus. However, in the case of accident of a bus, it was not simple to replace of bus that depot has to solve the issue and this will be the police case. Police will take care of the spot of accident and passengers and drivers/conductors, if any one informs them. The situation is critical and emergency that should not be delay. Formalities done through manually from some documents. This is another major disadvantage of this system.

III. PROPOSED SYSTEM

Buses are widely used public transportation in many cities these days. With the “Bus depot management in smart way”, employees can get an application to maintain and manage the records effective and accuracy. Computerized bus depot contains three units called Admin, Traffic inspector, Technical charge man interface where all are inter connected with a LAN cable wire and junction at server inside the depot. Here all rights are reserved to Depot Manager (Admin). Apart from admin, remaining two units they register their details and credentials through their interface. They get authority to access this system after admin allow to access by verifying details. This system contains all the details and the data regarding the depot. Depot manager through admin view will access this data, so it makes easy for accessing the data in a very easy, time saving, and dynamic way. Server contains well-designed database for effective storage and retrieving of information.

The next step will be adding complete data of the depot to the database with respective tables from technical charge man. In the next process, traffic inspector schedules the route with their bus, driver and conductor from the details fetch

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 9, Issue 5, May 2020

from database. Once the schedule completes notification has to send to the drivers and conductors sent by traffic inspector through internet / Wi-Fi to their receptive android application account before the schedule timings. Attendance of the employees will take trough there android application using biometric technology. Now the buses has to departure from the depot. At this time, the traffic inspector work is to check and take the date and time of departure of bus, to overcome the malpractices/ mistaken in recording timings application provides a camera and sensors to read the bus number and uploaded to database with current timing's and same for return back to the depot. The major keyword of the manuscript is emergency notify, this feature is implemented in the android application account of drivers and conductors. This feature helps them to send emergency notify SMS to nearest police station with location when the bus commits with accident. Accident detection done by using accelerometer sensor this component used to detect an accident. When the detection occurs the particular code to send emergency notification to the police and hospital to send ambulance. Additional with this, using GPS technology depot manager helps to track the depot bus easily. Conductors, report and handover collected the daily revenues to the depot manager. Revenue are frequently updated by conductors through their application, that helps to the manager get accurate count and work flow in easy and effective ways. By implementing this application, thereby enabling a more efficient depot management in smart way and eliminating confusions, inaccuracy, and possible human errors.

SYSTEM DESIGN:

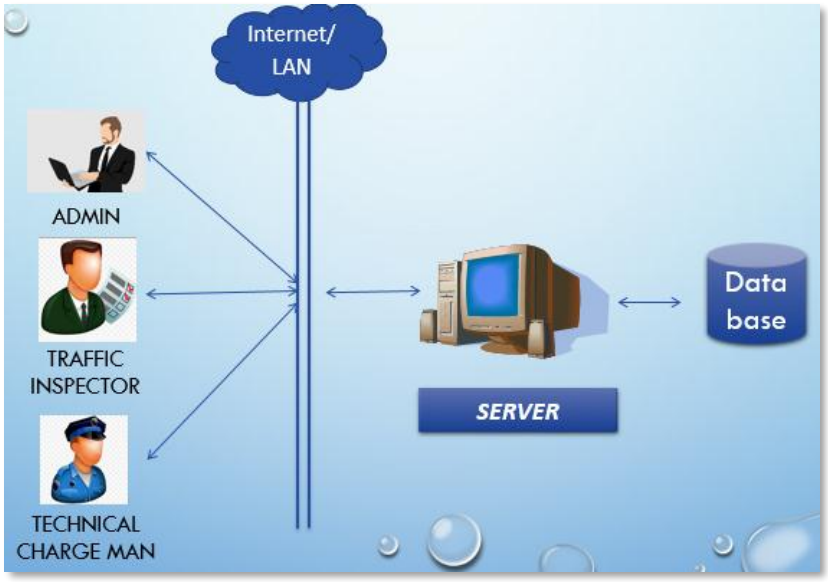

Fig 2: Block diagram of System Architecture.

ADVANTAGES:

- All authorized persons of depot have rights to use this application according to their designation.
- Details of drivers and conductors can easily view like joining date, designation and personal details.
- It is much faster to update, remove, add all information whenever requires.
- It reduces the complexity like attendance, identify drivers and conductors or buses
- The divisional manager of the depot could easily keep track of all the activities done by depots.
- Daily allotment of employees can easily allot without any confusions by using this application from spare option.
- Daily schedules displayed in depot. From this drivers and conductors easily know there schedules one day before.
- Admin/traffic inspector/technical charge-man can easily view expiration date of FC, emission-test, engine of the bus.
- Traffic inspector can easily get attendance status of conductors and drivers.
- Technical charge-man can get the available spare parts of bus in the tool room.
- The admin/traffic inspector in depot are allow to register the details of bus such as its number, type, engine stage, chassis number, engine manufacture date etc. and details of drivers and Conductors such as badge number , join date etc.
- Using their badge number manages schedule of drivers and conductors. Here we get unique identification.
- Buses allocated based on their route numbers by traffic inspectors.
- Admin / Traffic inspector can manage the bus, drivers or conductors in emergency from spare option when the notification arrived from the driver.
- This application is Flexibility, reliability, modifiability, portability, scalability based on advantages mentioned above.

IJARCCE
ISSN (Online) 2278-1021
ISSN (Print) 2319-5940
International Journal of Advanced Research in Computer and Communication Engineering
Vol. 9, Issue 5, May 2020

ER DIAGRAM:

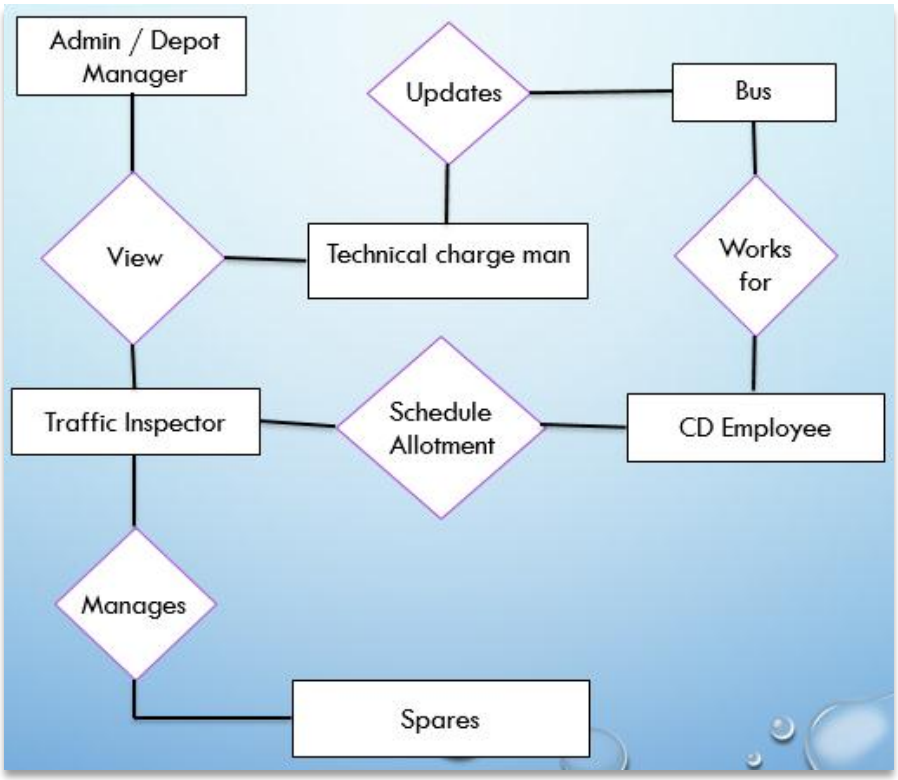

Fig 3: ER Diagram for depot database.

CONTROL FLOW DIAGRAM:

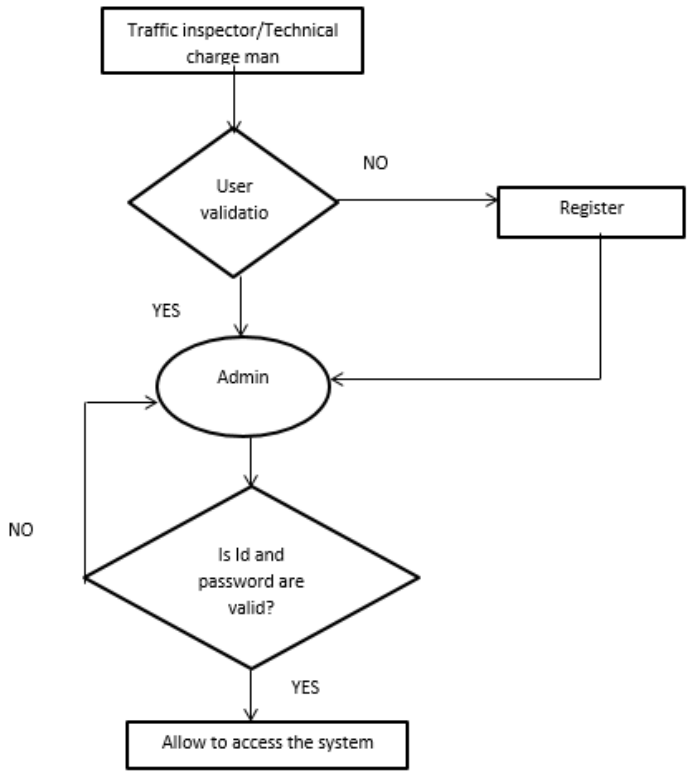

Fig 4: Control flow diagram of Traffic Inspector/Technical charge man

IV. CONCLUSION

This paper helps to prepare an effective product that will fulfil the problems of bus depot in which the buses, drivers, and conductors are increasing, and they should manage the buses in a smart way, that supports to the country digitalize and smart. Traffic inspector can quickly allocate drivers, conductors and buses from spare. We can get notify of expiration like engine expire date, FC expiration, emission expiration of the particular buses. This makes manuscript more efficient and useful in the managing the depot. Digitalise and get free from maintaining the ledger. Wastage of time and fuel because of existing system is solve by implementing this application, which is user friendly, effective, time saving, reduces complexity, accuracy. This application also increase in the safety of depot data using LAN's rather than ledgers, database security upgradation from chromatic password system, about mentioned in the references link below. We hope that these encouraging results would lean too many future works.

ACKNOWLEDGMENT

The authors would like to thank the anonymous reviewers for their valuable comments.

REFERENCES

[1]. KSRTC Karnataka state transportation services – https://ksrtc.in
[2]. Fizzah Bhatti, Munam ali shah, Carsten maple, saif ui islam – "A novel internet of things: enabled accident detection and reporting system for smart city environments" - https://www.mdpi.com/1424-8220/19/9/2071/htm
[3]. International journal [IJARCS] – "Bus management system" – http://dx.doi.org/10.26483/ijarcs.v9i3.5821
[4]. Liu Ying, Wang Jingyang, Li Yongmin, Cong Qiumei – "Research of bus station architecture based on smart space" International conferences paper 2015 IEEE
[5]. Divya M S, Kiran P S, A Ramadevi, Anu V B, Varun K S – "Chromatic password system: A novel method to avoid shoulder surfing attack" International paper [IJCRT] – 2020 - http://www.ijcrt.org/viewfull.php?&p_id=IJCRT2005192
[6]. J. Chandrashekara, Kiran P S, Varun K S, Manjunath G V – "Paying a toll fee in a smart way and emergency notify about an unregistered vehicle database" International Journal [IJRDT] - 2020 - http://ijrdt.org/full_paper/48821/1022/PAYING-A-TOLL-FEE-IN-A-SMART-WAY-AND-EMERGENCY-NOTIFY-ABOUT-AN-UNREGISTERED-VEHICLE-DATABASE

BIOGRAPHIES

Mr. Kiran. P. S has received the BCA degree [9th Rank] from Davanagere University in 2019 and Pursuing Master Of Science in Computer Science under the care of Davanagere University, Karnataka, India. Present Three International Papers in different publications. Attended one-day National seminar on Business analytics and machine learning in 2019. His research interest includes cloud computing, machine learning, big data, IOT.

Mr. Varun. K. S has received the BCA degree from Davanagere University in 2019 and pursuing Master of Science in computer science under the care of Davanagere University, Karnataka, India. Present Three International Papers in different publications. Attended two-day workshop on "THE WEB APPLICATION" in Feb 2017.his research interest includes big data, artificial intelligence, networks, and graphics.

Ms. Irshad Jabeen has received the BCA degree from Davanagere University in 2018 and pursuing Master of Science in computer science under the care of Davanagere University, Karnataka, India. Present Two International Papers in different publications. Interested doing research in new technologies.