iJRASET
International Journal For Research in Applied Science and Engineering Technology

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

**Volume:** 8 **Issue:** VI **Month of publication:** June 2020

**DOI:** http://doi.org/10.22214/ijraset.2020.6199

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
*ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429*
*Volume 8 Issue VI June 2020- Available at www.ijraset.com*

# Android based Smart Ticketing for PMPML using RFID

Akash Suryavanshi[1], Rahul Bhatalawande[2], Piyush Dangare[3], Neha Kokate[4], Prof. Sonali A. Patil[5]
[1, 2, 3, 4, 5]*Department of Computer Engineering, Trinity Academy Of Engineering, Pune*

***Abstract:*** ***Now a days Conductor required to conduct fare collection and passenger may face cash problems. This system will help in maintaining social distancing to the great extend. The smart card is mainly based on latest Radio Frequency Identification (RFID). There are many problems faced by the current system. Smart Bus Fare Collection System implemented by RFID card. This is a user friendly system, which will automatically identify the passenger and also deduct the passenger's fare according to the travelled destinations. To identify the identity of passenger RFID card is used and transaction very easy using RFID card. Mainly RFID cards are more convenient and reusable than the paper based ticketing system . RFID cards are distributed among the public. Using the personal information of an account will be created for user/Passenger and unique ID will be assigned to each user/passsanger with RFID cards. While accessing this database from the server, it is possible to identify the passenger, identify his/her account and deduct the fare from account after identification.***

## I. INTRODUCTION

Technological advantages have played a role in hundreds of years of successes. One mode of such transportation is roadways. People travel to different places due to work every day within the cities or outside. Roadways have made the travelling comfortable for regular passengers. The transport administration provides passes for the regular passengers to travel in buses within cities, which is still a manual process. The regular passengers have to go the administration and fill the form (paper work) and the bus passes. Ticket collection in bus is a major issue. Heavily boarded buses and lack of lose cash creates unnecessary chaos. RFID card reader is used to identify the passenger. The passenger will swipe the card while boarding and departing from the PMPML bus. The system will calculate the distance and stops depending on this information. The passenger will be charged ticket fare, which will be directly deducted from his/her account. We developed a mobile app where in the passenger will get an alert on his mobile regarding the "from and to" location he/she has travelled, ticket fare deducted from his/her account and remaining balance in the account.

## II. PROBLEM DEFINITION

Implementation of smart card technology for ticketing the passengers travelling in bus by using latest Radio Frequency Identification (RFID) technology To overcome above stated day-to-day problems, we are making an attempt to develop a smart ticket collection system. Here we are using RFID card reader. The passenger will be able to easily recognise the intermediate stops as well as the stop he/she wants to get down. There will be no ticket cash issue as the ticket amount will be deducted from the users account.

## III. LITERATURE SURVEY

Android is a slanting working framework utilized as a part of android telephones. It controls in excess of billion cell phones and tablets. Today, state governments are facing financial crisis in running the city buses due to the hike in petrol price and increasing demand of salary increment of bus employees. To add injury to the insult, there are many incidents where bus conductors are cheated by the passenger. The objective of the project is to implement the ticket booking in city buses using android app without the need of bus conductor. It also focuses on minimizing the expenses of the government on the city buses by reducing the need of bus conductors and checking officers. The ticket's QR code is scanned before the passengers boarding the bus and thereby malpracticing is prohibited. By implementing automation in the issuing of tickets in city buses, it can later be implemented in mofussil buses also.[1] Paper [2] has presented an automated, reliable, transparent and convenient system for ticketing in Public Transport System. RFID cards can be reusable and more convenient compared to paper based ticketing system. GPS helps in distance measurement and fare calculation. With this methodology the travelers can able to make their transaction easier, tracking of the bus will be possible. Additionally number of passengers accessing the bus can also be monitored and that information utilized to improve their service. This is more economical, reliable and user friendly system for public. Automatic bus fare collection system using RFID: Here, RFID card is given to each passenger or the traveler and when passenger gets into the bus of system track he has to swipe the

card into the RFID reader or monitor and based on the destination point the device will automatically the fare and deduct the money. All the record will have updated automatically in the server continuously.

This system overcomes all the problems faced in bus with IOT based webpage monitor system. [3] RFID and Android based smart ticketing and destination announcement system: Standing in long queues at bus stands, quarrelling with conductors for trifle matters make the journey uncomfortable for the passengers. That is why; in this system an idea for implementing smart card technology for ticketing the passengers travelling in bus. The smart card is mainly based on latest Radio Frequency Identification (RFID) technology.

For this purpose, an interface is built between RFID setup and driver's mobile phone using a specifically developed Android app "SwipeNgo". The interface helps to send passenger ID from RFID reader to the driver's mobile phone via Bluetooth. The developed "SwipeNgo" app is installed in driver's mobile phone and receives passenger ID from the RFID card reader via interface when passenger get into the bus.

Along with the passenger ID, "SwipeNgo" also keep records of the stoppage name/no. into database in mapping with the Global positioning system (GPS) coordinates. The exact fare between source and destination is calculated and deducted from the balance when the passenger gets down from the bus.

This information regarding balance is also sent to the RFID setup where the fare is displayed. There is a separate announcement system which alerts the passengers prior to the next halt. [4] RFID based ticketing for public/private transport system in bus: This system is much more public friendly and make system, automated system of ticketing as well as credit or card transaction with the use of card based ticketing in train/bus. being updated every single time the passenger travel by carrying the RFID based ticket in bus for update the system. [5] Conductor less bus ticket system using rfid and accident information through GSM the distance travelled by the passenger automatically using motor and u-slot sensor, and the corresponding amount is debited from RFID card. In addition to that if any kind of accident occurs, then accident information is automatically transmitted to the nearest hospital using GSM and GPS.

In this system RFID tag was rechargeable one, where as it can be recharged in bus depot or nearest retail shop. Micro controlled, keypad and LCD are provided in bus depot for recharging purpose by own. [6] RFID in cashless ticketing system:In more to the Smarter Card facilitating quick and easy cashless ticketing system, the ability to board a bus and pay virtually hands-free is realized as the RFID enabled RF Smarter Card is detectable not only when held in hand but also when carried anywhere on the commuter's person.

The commuter's transition onto the bus is made even smoother and faster as his or her ticket is expressly printed and ready for claiming as soon as he or she is successfully scanned entering through the doorway of the bus using rfid card to make ticket generate. The issued ticket reflects the commuter and card data gathered from the scan in addition to the scheduled route of the source to designation, boarded bus number, date and time of boarding. [7]

Mobile enabled bus tracking and ticketing system: Public transportation in many countries is being used as a means of transport for travelling and accordingly people would prefer these public transportations to be scheduled properly, on time and the frequency be increased for commuters to take good use of it..

Taking these aspects into consideration, an intelligent mobile bus tracking system for urban transport corporation as a case study has been proposed which enables commuters towards tracking bus of their choice and also knowing their arrival times. In addition to tracking, this system also notifies the passengers on their mobile towards topping up of credit in their RFID enabled smart tickets for travelling. [8] Automated ticket vending system using RFID tags: Before 2013, the ticketing system was tedious. People are standing in long queues for getting tickets especially in public mode of transportation. This leads to unnecessary time wastage and energy waste.

This system attempts to provide feasible solution for the problem of manual ticketing by the use of radio frequency identification tags. In the paper they have also presented the details on the architecture, integration and different design aspects of RFID based automated system.[9] RFID based bus ticket system: The Radio Frequency Identification (RFID) card and GPS are used to make the identification of passenger and transaction very precise. The cards being reusable, they are much more affiance compared to the paper based ticket system. RFID cards are distributed among the public.

The unique ID in the RFID cards is stored in a database in the internet system along with personal/private data and creates accounts for each person in system. By accessing this database, it is thus possible to identify the traveler, check his account and deduct the fare from his/her account.[10]

## IV. PROPOSED SYSTEM

RFID card reader is used to identify the passenger. The passenger will swipe the card while boarding and departing from the bus. The system will calculate the distance and stops depending on this information. The passenger will be charged ticket fare, which will be directly deducted from his/her account.

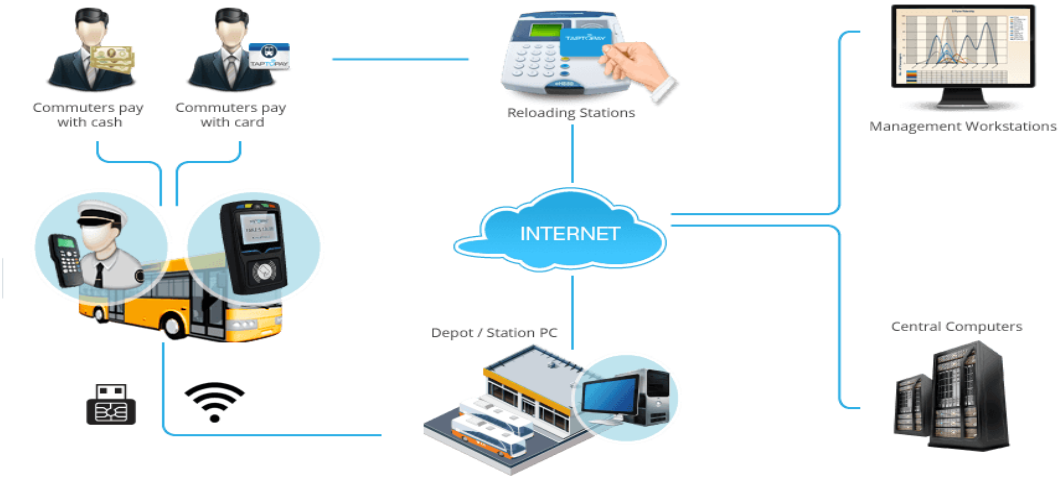



Fig. System Architecture

We are also developed a mobile app where in the passenger will get an alert on his mobile regarding the ”from and to” location he/she has travelled, ticket fare deducted from his/her account and remaining balance in the account. Node MCU is used to interface the RFID reader circuit. The data will be sent to cloud via firebase server. Mobile app is developed that will fetch the data from server. we are also reduced man power and easy to travel with cashless transactions but smart card must be scan before journey. This system is useful to controls social distancing. We can also track the bus which is going to travel.

## V. RESULTS

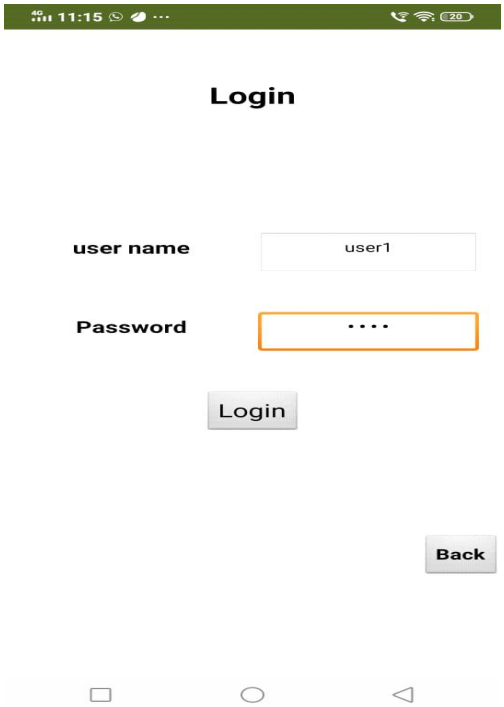



Fig. 8.1 Login Page

*ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429*
*Volume 8 Issue VI June 2020- Available at www.ijraset.com*


Fig.2. Home Pages

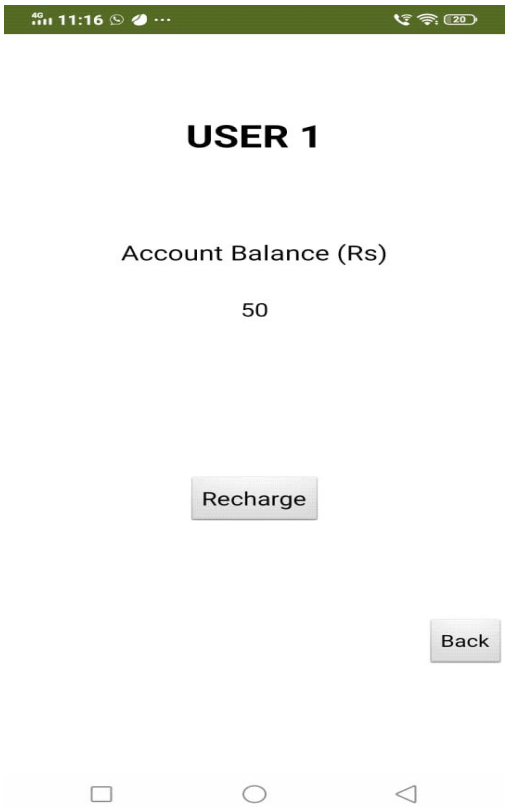



Fig. 8.3. View Available Balance and Recharge


Fig. 4. Select Bus for Tracking

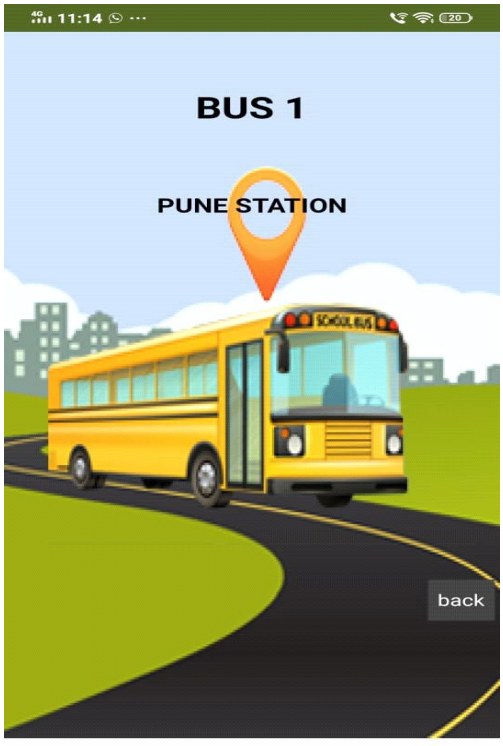



Fig. 5. View Bus 1 Status

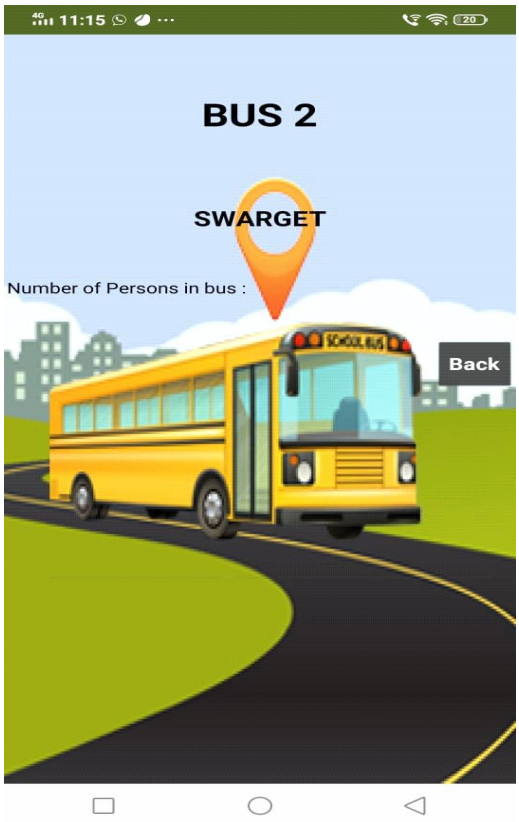


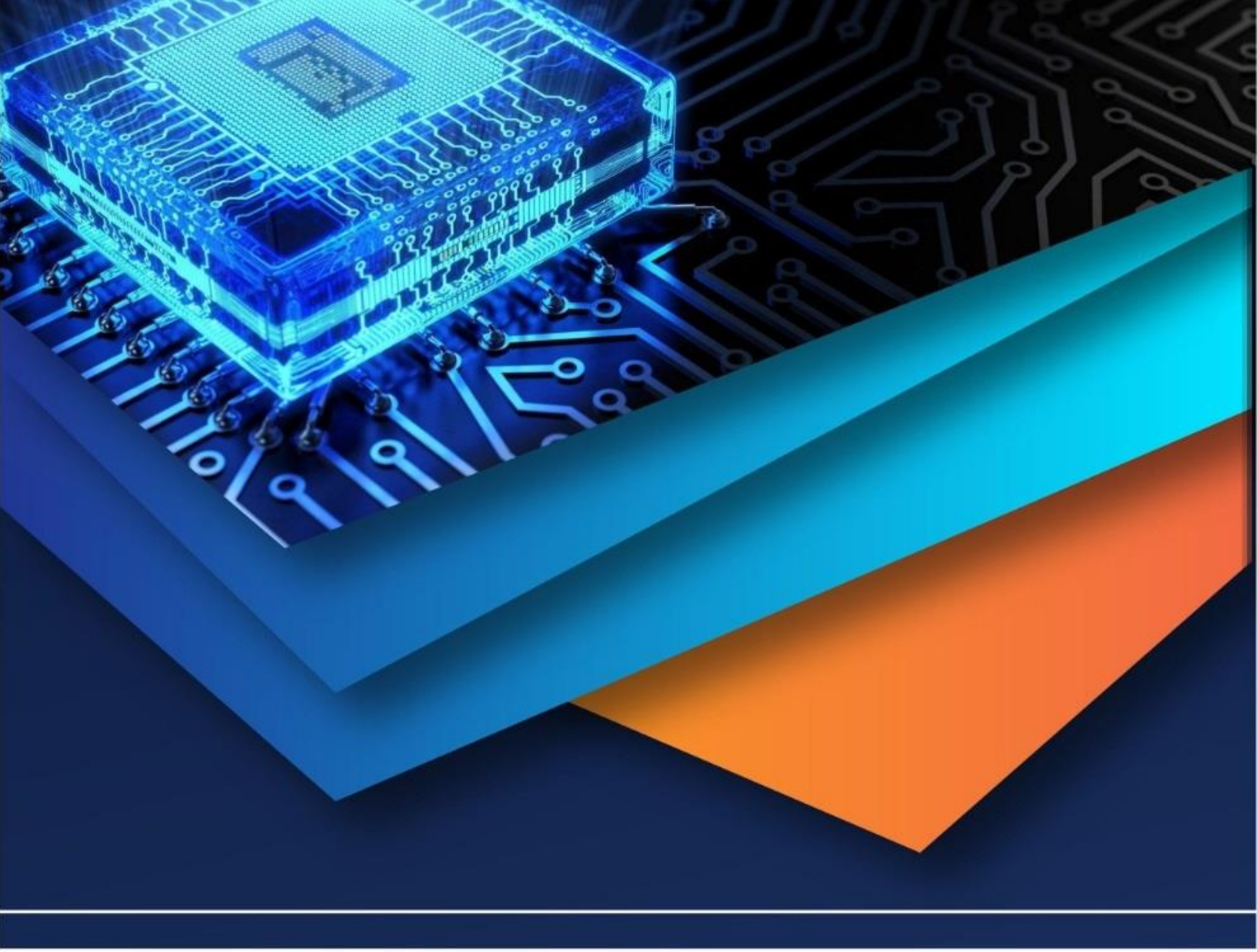

Fig. 6. View Bus 2 Status

## VI. CONCLUSION

RFID cards i.e. the smart cards are used for person identification. Information regarding bus stop will be displayed via LCD. The distance travelled by the passenger will be calculated and depending on which the person will be charged ticket fare that will be deducted from his/her account directly. The system is a fully automated, reliable, transparent and convenient system for ticketing in public transportation system. RFID cards being reusable are much more convenient compared to the paper based ticketing. It makes human effort easy and even more convenient.

## REFERENCES

[1] S.Venkatraman, R.Gnana Shankar, Cherukuru Chalapath, "Automated Bus Ticketing System using Android Application", International Journal of Pure and Applied Mathematics Volume 118 No. 20 2018, 2903-2912.
[2] Champakamala B S, Padmini K2, "RFID, GPS and Android based Smart Ticketing System for BMTC ", Proc. of Int. Conf. on Current Trends in Eng., Science and Technology, ICCTEST, 2017.1.217.
[3] SunitaNandhini, Sangeetha G, Vidhyajanani J, "Automatic bus fare collection system using RFID" International Journal Of Advance Research in Computer Science And Management Studies, Vol. 6 Issue 3, March 2017.
[4] Prasun Chaudhary, PoulamiBala, Diptadeep Addy, "RFID and Android based smart ticketing and destination announcement system" Advances in Computing, Communications and Informatics (ICACCI), 2016.
[5] Piyush Chandra, PrakharSoni, Rakesh Kumar Keshari, "RFID based ticketing for public transport system" International Journal Of Advance Research in Computer Science And Management Studies, Vol. 2 Issue 5, May 2014
[6] T.Manikandan, G.Kalaiyarasi, K.Priyadharshini, R.Priyanga "Conductor less bus ticketing system using RFID and accident information through GPS and GSM" IJISET – International Journal Of Innovative Science Technology, Vol. 2 Issue 9, September 2015
[7] Paul Hamilton and Suresh Sankaranarayanan" Intelligent Agent Based RFID System for on Demand Bus Scheduling and Ticketing" International Journal of Future Computer and Communication, October 2013
[8] SureshSankarananrayanan Computing and Information systems, Paul Hamilton Delta Supply Co Ltd Kingston"Mobile Enabled Bus Tracking and Ticketing System" 2nd International Conference on Information and Communication Technology (ICoICT) c 2014 IEEE477.
[9] Sidharth, VR .Subramanian R. Vijayaraghavan "Automated Ticket Vending System Using RFID Tags" Department of Electronics and Instrumentation, Sri Sairam Engineering College, 2013
[10] Dr.Bos Mathew Jos1, AhammedAslam. N 2, Akhil. E. P 3, Divya Lakshmi. G 4, Shajla. C 5 Associate Professor, Dept. of EEE, M A College of Engineering, Kothamangalam, Kerala, India" International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering" April 2015



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY