RAILWAY TICKET CHECKING APPLICATION USING NRF TECHNOLOGY

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ABSTRACT

In indoor localization, indoor navigation still appears to be a challenging issue. Sometimes, wireless signal like Wi-Fi and GSM, the most exploited source for inferring location may not be suitable for navigation purposes. Advances in phone technology and new style of computing paradigm i.e., mobile computing permits real time acquisition, processing, and tracking of activities and movement of the people. Android application is developed and deployed in every user's device. User books the ticket for the destination and transaction id is generated for it. NRF Hardware is attached at every station & in mobiles. User's mobility is tracked completely. Once user reaches the destination, an alert is provided. User can either terminate the travel or continue the travel. If user is continuing the travel then amount is subtracted from the account. If the travel is continued without payment, then double the times charges are reduced. Auto SMS alert to the ticket checker in case of travel by a passenger without ticket. Emergency health support is also provided to the station through the Application.

Keyword: *Ticket checking, Penalty, NRF technology*

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1. INTRODUCTION

This project is concentrated on people who often use local trains for their short travels. This Android application can be used to buy e-ticket and it prevents passengers to stand in queue and waste the time. Android is on open source operating system developed by Google. It is easier and cheaper to develop Android applications. Source code is written in Java language. This application helps to buy ticket in emergency situations when we want to board train immediately instead of standing in queue for the ticket. The user's movement is tracked using NRF technology. The current train ticket gate in Japan uses passive (no built-n battery) Radio Frequency Identification (RFID). However, RFID system is unsafe since the nature of RF is very vulnerable and can be attacked and interfered easily. Passive RFID has limited communication range and speed. For these reasons, we propose a new ticket gate system which

provides higher secured communication since it is based on Optical Wireless Communication channel in which its signal doesn't scatter around in a large area as RF signal does and it is immune to the interference caused by other RF devices. The ticket checking mechanism is the most significant part of the project, Furthermore, its instalment cost is much lower than the conventional one since opto-electronic devices used in this system are cheap and easy to install. Also, it doesn't require sensors which are used by the current system to detect a passenger passing through the gate.The Aim of this project is to develop an Android Application that can book the railway ticket, track the passenger till destination and intimate them on reaching the destination. The major part of this project is checking the tickets and preventing passengers to travel without ticket by fining penalty. This helps the passengers to buy tickets easily and helps the Railway department by ticket checking and imposing fine.

2. EXISTING SYSTEM

In the existing system, there is an application for ticket booking but there is no facility for ticket checking. Also the navigation tracking is not much effective to find the journey made by the passenger. The current train ticket gate in Japan uses passive (no built-n battery) Radio Frequency Identification (RFID). However, RFID system is unsafe since the nature of RF is very vulnerable and can be attacked and interfered easily. Passive RFID has limited communication range and speed.

Disadvantages of Existing system:
- Waiting time is increased
- Unreliable
- Less data transmission rate
- Less effective

3. PROPOSED SYSTEM

In the Proposed system, android application is developed and deployed in every user's device. User will book the ticket for the destination and transaction id is generated for it via citizenship card. LiFi Hardware is attached at every station & in mobiles. User's mobility is tracked completely. Once user reaches the destination, a Normal / Voice alert is provided. User can terminated the travel or continue the travel. If user is continuing the travel then amount is subtracted from the account. If the travel is continued without payment than double the times charges is reduced. Auto SMS alert to the ticket checker in case of travel by a passenger without ticket. Emergency health support is also provided to the station through the Application.

Benefits of the proposed system:
- Waiting time is decreased
- Reliable
- High data transmission rate
- More effective

4. SYSTEM ARCHITECTURE

Mobile Client is an Android application which created and installed in the User's Android Mobile Phone so that we can perform the activities. The Application First Page Consist of the User registration Process. We'll create the User Login Page by Button and Text Field Class in the Android. While creating the Android Application, we have to design the page by dragging the tools like Button, Text field, and Radio Button. Once we designed the page we have to write the codes for each. Once we create the full mobile application, it will generated as Android Platform Kit (APK) file. This APK file will be installed in the User's Mobile Phone an Application. Using this APK user will be registering with the server by providing Alternative mobile number & Email ID. User's IMSI number is also captured by the server. The Server Application which is used to communicate with the Mobile Clients. The Server can communicate with their Mobile Client by GPRS and Wireless network. User will be initially registering with the server. The details of the users, journey details, station names and corresponding fares are stored in the database in the server. They can be retrieved based on the request made by clients through the application. A wallet is created for each registered user. The wallet is recharged from the user's bank account by net banking. A unique wallet id is created for each user. Password is also created for the wallet to ensure security. Once the android user starts his/her

journey, he/she has to open the application and enter the source and destination. When the source and destination are chosen, that day passkey is generated and amount is debited form the wallet. We implement the additional charge calculation for the passengers travelling without buying tickets. When the user goes out of the range or he is not stopping his journey at destination or if he violate the rule of the application, double the amount will be debited from the bank and it is updated to the user.

5. LITERATURE SURVEY

PROJECT TITLE:

Path-Based Failure and Evolution Management

AUTHOR:

Mike Y. Chen, Anthony Accardi, EmreKıcıman, Jim Lloyd, Dave Patterson, Armando Fox, Eric Brewer

DESCRIPTION:The author presents a new approach to managing failures and evolution in large, complex distributed systems using runtime paths. Use the paths that requests follow as they move through the system as our core abstraction, and our "macro" approach focuses on component interactions rather than the details of the components themselves. Paths record component performance and interactions, are user-centric and request-centric, and occur in sufficient volume to enable statistical analysis, all in a way that is easily reusable across applications. Automated statistical analysis of multiple paths allows for the detection and diagnosis of complex failures and the assessment of evolution issues. In particular, our approach enables significantly stronger capabilities in failure detection, failure diagnosis, impact analysis, and understanding system evolution. We explore these capabilities with three real implementations, two of which service millions of requests per day. Our contributions include the approach; the maintainable, extensible, and reusable architecture; the various statistical analysis engines; and the discussion of our experience with a high-volume production service over several years.

PROJECT TITLE:

 Quality of Information in Wireless Sensor Networks

AUTHOR:

Vinay Sachidananda, AbdelmajidKhelil, Neeraj Suri.

DESCRIPTION:In Wireless Sensor Networks (WSNs) the operating conditions and/or user requirements are often desired to be evolvable, whether driven by changes of the monitored parameters or WSN properties of configuration, structure, communication capacities, node density, and energy among many others. While considering evolvability , delivering the required information with the specified quality (accuracy, timeliness,reliabilityetc) defined by the user constitutes a key objective of WSNs. Most existingresearch efforts handle fluctuations of operation conditions in order to deliver information with the highest possible specified quality.

PROJECT TITLE:

A sensor-Fusion Drivable-region and Lane-detection System for Autonomous Vehicle navigation in Challenging Road Scenarios.

AUTHOR:

QINGQUAN LI, LONG CHEN, MING LI, SHIH-LUNG SHAW AND ANDREAS NUCHTER.

DESCRIPTION:Autonomous vehicle navigation is challenging since various types of road scenarios in real urban environments have to be considered, especially when only perception sensors are used, without position information. In this paper presents a novel real-time optimal-drivable-region and lane detection system for autonomous driving based on the fusion of Light Detection and Ranging (LIDAR) and vision data. Our system uses a multisensory scheme to cover the most drivable areas in front of the vehicle. Then a conditional lane detection algorithm is selectively executed depending on an automatic classification of the optimal drivable region. Our system successfully handles both structured and unstructured roads.

PROJECT TITLE:

Autonomous Vehicle Public Transportation System: Scheduling and Admission control

AUTHOR:

ALBERT Y.S.LAM, Y IU-WING AND XIAOWEN CHU

DESCRIPTION:In this paper, Technology of autonomous vehicles (AVs) is getting mature and many AVs will appear on the roads in the near future. AVs become connected with the support of various vehicular communication technologies and they possess high degree of control to respond to instantaneous situations cooperatively with high efficiency and flexibility. A new public transportation system based on AVs. It manages a fleet of AVs to accommodate transportation requests, offering point-to-point services with ride sharing. The former is to configure the most economical schedules and routes for the AVs to satisfy the admissible requests while the latter is to determine the set of admissible requests among all requests to produce maximum profit. The scheduling problem is formulated as a mixed-integer linear program and the admission control problem is cast as a bi-level optimization.

PROJECT TITLE: Sensing requirements for a 13,000 km intercontinental autonomous drive.

AUTHOR: A. BROGGI, L. BOMBINI, S. CATTANI, P. CERRI, AND R.I. FEDRIGA
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DESCRIPTION: In this paper presents the design issues that were considered for the equipment of 4 identical autonomous vehicles that will drive themselves without human intervention on an intercontinental route for more than 13,000 km. Autonomous vehicles have been demonstrated able to reach the end of a 220 miles off-road trail (in the DARPA Grand Challenge), to negotiate traffic and obey traffic rules (in the DARPA Urban Challenge), but no one ever tested their capabilities on a long, intercontinental trip and stressed their systems for 3 months in a row.

6. TEST CASES AND REPORT

Table -1: Test cases

Test case	Expected Output	Obtained Output	Result
Click sign up	User details get registered	User details get registered	Pass
Click sign in	User gets logged into the application if given valid credentials	User gets logged into the application if given valid credentials	Pass
Click apply ticket	Asks for source and destination	Asks for source and destination	Pass
Submit journey details	Fare is displayed and gets debited from wallet	Fare is displayed and gets debited from wallet	Pass
Click show ticket	Booked ticket is retrieved when id is given	Booked ticket is retrieved when id is given	Pass
When destination station is reached	User is intimated	User is intimated	Pass

7. CONCLUSION

In this paper, a novel ticket gate system employing NRF technology at a train station is proposed and results were demonstrated. According to the results, the proposed system has a better performance and higher system's availability compared to the conventional one. This project when implemented in a large scale will be more beneficial for both users and Government. The ticket checking mechanism is the most significant part of the project, Furthermore, its instalment cost is much lower than the conventional one since optoelectronic devices used in this system are cheap and easy to install. Also, it doesn't require sensors which are used by the current system to detect a passenger passing through the gate.

This project can be implemented in real time by integrating banking services and railway department databases. This will enable more revenue for the Government and reduces manpower and improve the system efficiency. Numerous new features can be added to this system. Wallet and recharging techniques can be made more efficient and convenient. Real time implementation cannot be made possible if it not accepted by people of all kind. So measures can be made to insert facilities that attract people of all ages. Location tracking can also be made more accurate to improve the system and develop advanced application.

8. ACKNOWLEDGEMENT

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