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SMART STAR BUS FOR METROPOLITAN CITIES

[#1]Shubham Yemul, [#2]Rohit Naiknaware, [#3]Kalpana Devkar, [#4]Varsha Warkhade

[1]shubhamyemul5@gmail.com
[2]rohit.naiknaware.25@gmail.com
[3]kalpana.devkar1994@gmail.com
[4]varshawarkhade8623@gmail.com

[#1234]Department of Computer Engineering
JSPM's
IMPERIAL COLLEGE OF ENGINEERING AND RESEARCH,PUNE,MAHARASHTRA,INDIA

ABSTRACT

The need for a real-time public transport information system is growing steadily. Change money is the main problem in metropolitan star bus system, which makes ticket collection system difficult in manual case. On other hand bus safety is the main issue we are facing now days. By considering these problems we proposing this system which will solve all this problems. In the proposed system automatic Fare Collection System implemented by RFID/Smart card, IR sensor, Temperature sensor, Collision sensor. RFID card is given to the passenger and when passenger gets into the bus he has to swipe the card in the RFID reader and he has to include a destination point in the device will automatically calculates the fare and deduct the money automatically from server. People do not have to carry the money and they don't have the problem in giving the right change to conductor. Automatic Fare Collection System implemented by RFID/Smart card, IR sensor, Temperature sensor, Collision sensor.

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I. INTRODUCTION

"Smart Star Bus System" consists of RFID/Smart card, IR sensor, Temperature sensor, Collision sensor. RFID card is given to the passenger and when passenger gets into the bus he has to swipe the card in the RFID reader and conductor has to enter the destination point in the device and it will automatically calculates the fare and deduct the money from the server. People do not have to carry the money and they don't have the problem in giving the right change to conductor.

In Smart Star Bus System, Temperature sensor, Tilt sensor is used for the safety of the passengers. In case of sudden fire in the bus or accident occurs, the Temperature sensor and Tilt sensor, senses the situation and alerts the bus depot also shows the deflection through fluctuation of LED light. So that emergency service could arrive on the spot as soon as possible.

For the counting of the passengers boarded in the bus, the IR sensor is used. When the passenger enters into the bus, the sensor will make a count of passenger in the database and also decrement the passenger count on their exit. Also the passenger who waiting for arrival of the bus will be able to know the exact count of the passengers in the bus. On the basis of the information, the passenger can make its decision to choose the transport.

II. LITERATURE SURVEY

In proposed paper automatic Fare Collection System implemented by RFID /Smart. RFID card is given to the passenger and when passenger gets into the bus he has to swipe the card in the RFID reader and he has to a destination point in the device will automatically calculates the fare and deduct the money automatically from server. People do not have to carry the money and they don't have the problem in giving the right change to conductor. Smart card .This project is made with pre-planning, that it provides better application for the passenger. This project Bus Smart Card Ticket System is designed with the hope that it is very much economical and helpful for passengers and as well as conductors during Journey [1].

This paper describes a methodology for predicting the destination of the journeys from the ATS data. It builds on previous work found in the literature by applying key assumptions, but introduces a methodology that is especially applicable to the case of entry-only systems with a distance based fare structure, which had not been studied before. The

proposed approach contains two contributions. First, it proposes new spatial validation rules at disaggregate level. These additional rules deal duplicate transaction records. Their purpose is to test the validity of key assumptions regarding the circularity of daily journey chains and continuity of daily travel. The spatial validation rules were not prolific in the identification of false positives that were not identified from previous validation steps, but did support the validity of the key assumptions. The second contribution relates to improved reliability of estimation results [2].

Respective paper describes a methodology for estimating the destination of passenger's journey from AFC system data. It builds on previous work found in the literature by replicating key assumptions, but introduces a methodology that is specifically applicable to the case of entry-only systems with a distance based fare structure, which had not been addressed before.

The proposed methodology makes two contributions. First, it proposes new endogenous spatial validation rules at disaggregate level. These additional validation rules deal with the number of zones or stages in a travel card which is specific to distance based fares and with the existence of duplicate transaction records. Their purpose is to test the validity of key assumptions regarding continuity of daily travel and the circularity of daily journey chains, on a single case basis and at maximum disaggregation level. For the Porto STCP buses case study, the spatial validation rules were not prolific in the identification of false positives that were unspotted from previous validation steps, but did support the validity of the key assumptions. The second contribution relates to improved reliability of estimation results [3].

Transit buses are involved in many more accidents than other vehicles. Collision Warning Systems (CWS) are therefore placed most efficiently on these buses. In our project, we investigate their operating environment and available technologies to develop performance specifications for such CWS. This paper discusses our findings of transit buses driving through much cluttered surroundings and being involved in many different types of accidents where currently available CWS do not work effectively. One of the focuses of our work is pedestrians around the bus and their detection [4].

Further paper, the fare collection problem has been eliminated Moreover, the project phase is completed successfully by using smart card .This project is made with pre-planning, that it provides flexibility in operation. This innovation has made more desirable and economical. This project Automatic bus fare collection System using RFID is designed with the hope that it is very much economically helpful for passengers and as well as conductors during Journey [5].

III. SYSTEM APPROACH

In the Proposed System , RFID tag is used in the smart card and RFID device . When passenger scans the card , the RFID reader scan the smart card(Tag) and result generated , then the data generated is sent to the local database and the cloud .

In the respective system Arduino Microcontroller is also used which is connected to several sensors(IR sensor, Temperatures sensor and Tilt sensor). In Proposed System , IR sensor is being used for the increment(entry) and the decrement(exit) of passenger's entry .

Temperature sensor is used in case of sudden fire , using this sensor the data is transferred to the nearest help service like police station or hospital and a fluctuation in LED light is displayed in the GPS map . So , basically , this sensor sends the data to local database and from the database , the message is conveyed to the bus depot for emergency services.

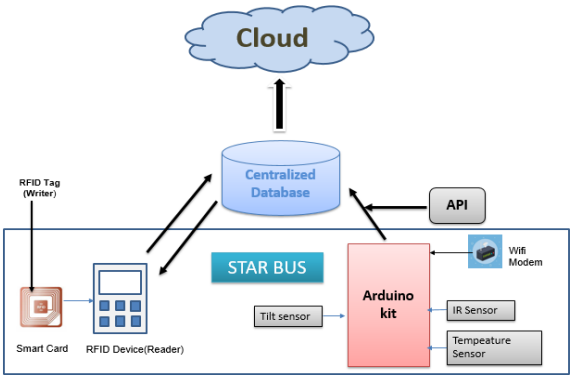

Figure 1: System Architecture

Fig: Temperature Sensor

Fig: IR Sensor

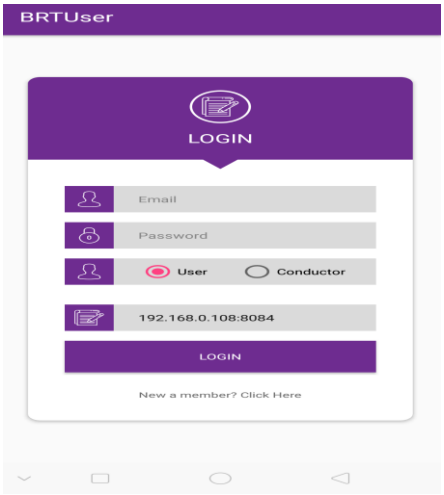

Fig: User login

Fig: User location tracker

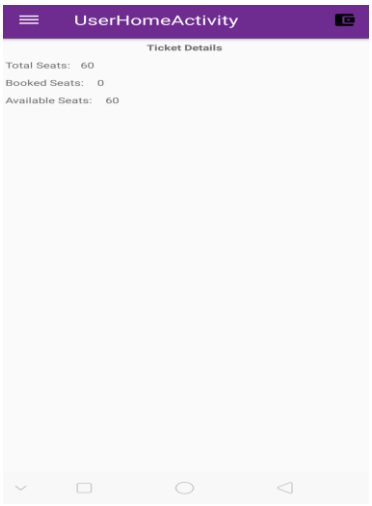

Fig : User Location tracker

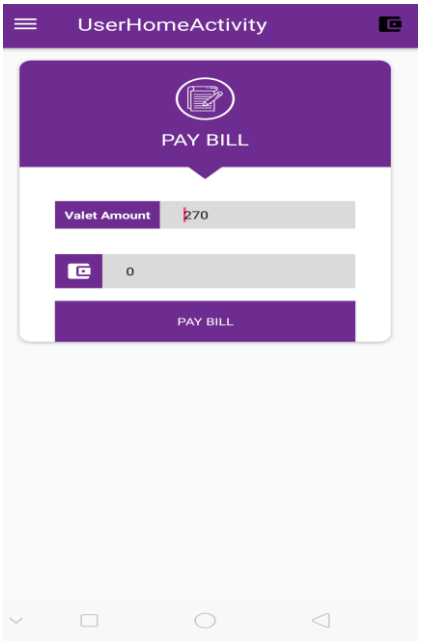

Fig: User Pay Bill Activity

Algorithm : Fast and Scalable kNN Algorithm (FSkNN)

Input : In, input matrix or a portion of the input matrix;
$n_{chunksize}$, dimension of the sub-matrix (chunk);
k, number of nearest neighbors;

Output: The kNN graph stored in Gk;

```
create Gk;
Gk[i].weight ← float_max, for i← 0...(n_row − 1);
initialize (segments, n_GPU);
foreach segment ∈ segments do
    create D;
    create Gk′;
    host → device (In, D, Gk′);
    initialize (splits, segment);
    create Maxk;
    foreach split ∈ splits do
        initialize Maxk;
        host → device (Maxk);
        initialize (chunks, split);
        foreach chunk ∈ chunks do
            Call Distance Kernel <<<grid1, block1>>> (In, n_chunksize, split, chunk, b);
            Call kNN Kernel<<<grid2, block2>>>(D, n_chunksize, split, chunk, Maxk);
    device → host (Gk′);
return Gk;
```

IV. CONCLUSION AND FUTURE WORK

In this system the fare collection problem has been eliminated moreover, the project phase is completed successfully by using smart card. This project is made with pre-planning, that it provides flexibility in operation. This innovation have made more desirable and economical.
This project “Smart Star Bus for Metro Politian Cities” is designed with the hope that it is very much economically helpful for passengers and as well as conductors during Journey. Future work will focus on exogenous validation of the methodology once up-to date. Future improvements to the methodology may include additional validation rule based on an interchange time interval. Additionally, it is expected that new multi modal AFC system data will become available in the near future, which will allow the application of the methodology to boarding transactions across all Andante operators.

V. ACKNOWLEDGMENTS

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