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A Novel automated fare provide to the passengers based on destination Using LPC2148 &RFID reader and tags

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Abstract

This project is design in order to provide automated fare on destination estimation in bus to the passengers This research explores the application of archived data from Automated Data CollectionSystems (ADCS) to transport planning with a focus on bus passenger travelbehavior, including Origin-Destination (OD) inference, using London as a case study.It demonstrates the feasibility and ease of applying trip-chaining to infer bus passengerOD from smart card transactions and Automatic Vehicle Location (AVL)data and is the first known attempt to validate the results by comparing them withmanual passenger survey data. With the inferred OD matrices, the variations ofweekday and weekend bus route OD patterns are examined for planning purposes.Moreover, based on the inferred OD matrices and the AVL data, alighting times for bus passengers also can be estimated. Bus journey stages, therefore, can easily belinked. By comparing the interchange time and the connecting bus route's headway,it provides a way to evaluate bus connections.In this paper we exploit the extensive farecard transaction data for deriving useful information about transit passenger behavior, namely trip purpose or activity. We show how the farecard datacan be used to infer trip purpose and to reveal travel patterns in an urban area. A case studydemonstrates the process of trip purpose inference based on farecard data from Metro Transit inthe Minneapolis-St. Paul metropolitan area.

Keywords: Keil vision IDE, LPC2148 Microcontroller, Power Supply Unit, RFID reader and tags

1. INTRODUCTION

The Public transport system is a major source ofincome in developing countries like India.But, this publictransport system faces several problems. The conductorwill face various problems in issuing the tickets.

But,this new system will provide the tickets automaticallyand deduct the fare for the distance travelled from thepassenger's account.It is also used for passengersIdentification. RFID has been an emerging technology inrecent years.RFID consists of two components,RFIDTag and RFID Reader.RFID Tag contains information'ssuch as name, address and mobile number.RFID readerreads the above information's from the RFID Tag.IRsensor is used to count the number of persons enteringinto the bus.The location of the bus can be identifiedby GPS.The occurrence of accident information to thechecker and the ticketing information to the user istransmitted using GSM.The occurrence of accidents issensed by vibration sensor. The vibration sensor used hereis MEMS Accelerometer. Using GPS log data from vehicle- and person-trips, Wolf proposes to use land use types atthe trip end as the primary means to identify trip purpose. In a more recent study, Stopher et al.collect the address of the respondent's home and work place or school, the two mostfrequently used grocery stores, and occupation, to enhance their method of deriving trip purpose.Bohte and Maatalso propose an innovative method that combines GPS logs, GIStechnology and an interactive web-based validation application. In contrast, using transit AFCdata, our approach to inferring trip purpose is based on the assumption that every transaction ismade within a sequential trip chain. This approach is conventionally appealing when farecarddata are analyzed. Such an assumption on trip chaining implies that the destination of a trip isalso the origin of the following trip.

2. RELATED WORK

Existing system

In existing methods, for fare allocation a conductor is needed to provide the ticket to the passenger according to the destination. But there may be chances of human errors like listening errors and getting the ticket of other than destination, not reliable for conductor to monitor each passenger boarding in bus, which may lead to loss of revenues to respective transportation departments.

- ✓ Manual operation
- ✓ Monitoring depends on conductor
- ✓ Less Accuracy system
- ✓ Loss of revenue

Proposed system

In proposed system, eliminating the above disadvantages and having a more efficient and accurate bus system is

provided with an RFID reader to read multiple tags information here we are using RFID application for four applications

1. To provide ticketing system for passengers
2. To update the area information
3. To update the bus stop information

On roads with proper vicinity the tags have been placed and whenever bus enters into the particular area from the tag the location will be updated and the stop arrival is also updated automatically through RFID then the bus is stopped and door will be opened, here there is also scope for replacement of conductor i.e. passengers are provided with RFID tags and the tags shown by passengers valid means then only the door will be opened. After reading ticket tags present station and its destination station will be calculated and automated fare will be generated and deducted from the card.

3 IMPLEMENTATION

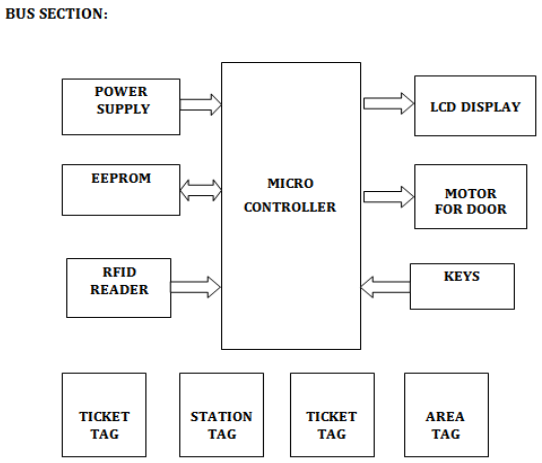

Fig 1: - Project Block Diagram

LPC2148:

The LPC2148 microcontrollers are based on a 32/16 bit ARM7TDMI-S CPU with real-time emulation and embedded trace support, that combines the microcontroller with embedded high speed flash memory ranging from 32 kB to 512 kB. A 128-bit wide memory interface and a unique accelerator architecture enable 32-bit code execution at the maximum clock rate. Forcritical code size applications, the alternative 16-bit Thumb mode reduces code by more than 30 % with minimal performance penalty. Due to their tiny size and low power consumption, LPC2148 are ideal for applications where miniaturization is a key requirement, such as access control and point-of-sale. A blend of serial communications interfaces ranging from a USB 2.0 Full Speed device, multiple

UARTs, SPI, SSP to I2Cs, and on-chip SRAM of 8 kB up to 40 kB, make these devices very well suited for communication gateways and protocol converters, soft modems, voice recognition and low end imaging, providing both large buffer size and high processing power. Various 32-bit timers, single or dual 10-bit ADC(s), 10-bit DAC, PWM channels and 45 fast GPIO lines with up to nine edge or level sensitive external interrupt pins make these microcontrollers particularly suitable for industrial control and medical systems.

Power Supply

The input to the circuit is applied from the regulated power supply. The a.c. input i.e., 230V from the mains supply is step down by the transformer to 12V and is fed to a rectifier. The output obtained from the rectifier is a pulsating d.c voltage. So in order to get a pure d.c voltage, the output voltage from the rectifier is fed to a filter to remove any a.c components present even after rectification. Now, this voltage is given to a voltage regulator to obtain a pure constant dc voltage. The block diagram of regulated power supply is shown in the figure.

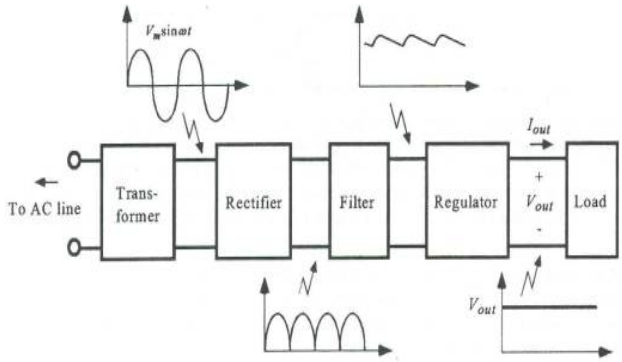

Fig 2:- Components of power supply

RFID reader

An RFID reader's function is to interrogate RFID tags. The expedient of interrogation is wireless and because the distance is relatively short; line of optical discernment between the reader and tags is not compulsory. A reader contains an RF module, which acts as both a transmitter and receiver of radio frequency signals. The transmitter consists of an oscillator to engender the carrier frequency; a modulator to impinge data commands upon this carrier signal and an amplifier to boost the signal enough to arouse the tag. The receiver has a demodulator to extract the returned data and additionally contains an amplifier to fortify the signal for processing. A microprocessor forms the control unit, which employs an operating system and recollection to filter and store the data. The data is now yare to be sent to the network.

4 EXPERIMENTAL RESULTS

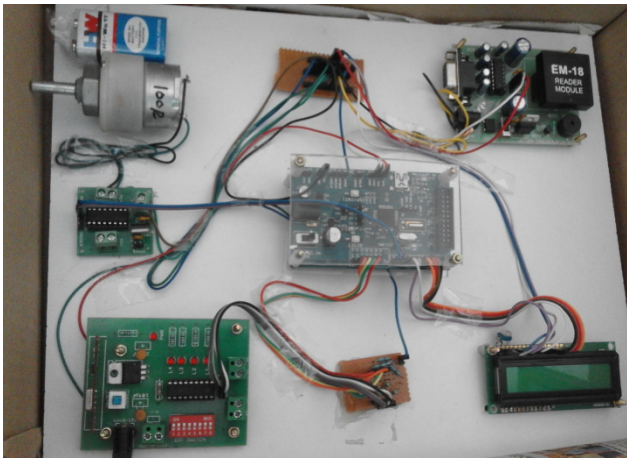

Fig 3:- Project hardware Kit

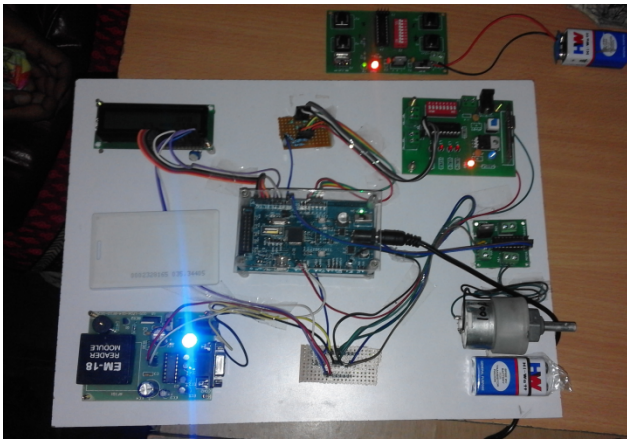

Fig 4:- Project Kit on Working Process

5 CONCLUSION

Methodology for estimating the destination of passenger journeys from afc system specially applicable to the case of entry only system with a distance based structureThese additional validation rules deal with the number of jones or stages in travel cardThis work introduced afc system data from the main bus operator in port 0To estimate the destination of journeys The future work will focus on exogenous validation Once up to date od survey results become available from stcpFuture impartments methodology include an additional validation rule based on inter change time intervalIt is expected that new multimodal afc systemAFC system data will become available in the near future

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