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A PATH FOR HORIZING YOUR INNOVATIVE WORK

IN-TIME BILLING PROCESS FOR CANTEEN MANAGEMENT SYSTEM

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Abstract: - In colleges, schools or Inside an University campus canteen facility is provided. Students, college staff or university staff uses this facility. Similarly food facilities provided in canteen in various companies. In this canteen students or employees pay their bills by cash. In previous system, cash payment is the only option for making the payment. This is the case for small canteens. In rare cases some big canteens credit card facility is provided. The main drawback of cash payment system is that user always needs to carry the cash with him/her. And he/she needs to pay the exact amount otherwise there is problems for the remaining amount. One more problem is that in colleges the students are going to have food in the same canteen throughout the month. In such cases an account of students is maintained in a notebook. Canteen owner writes order details of students on daily basis and at the end of the month total is calculated. This method has limitation and draw backs of maintaining paper based records. These paper based records can get spoiled or damaged and data of student account might get lost. To give an effective solution for these problems we have proposed system called "In-Time billing process for canteen management system". For this system canteen owner or canteen administrative person will give a RFID card to the user. This user can be a student in case of collages and an employee in case of an organization or company. This system is very effective. Advantage of this system is that it is really help full and effective for those people who have to go to canteen on daily basis. They need not to carry cash. A card is allocated to each user and user can recharge this card with a certain amount**.**

Keywords: Real Time Clock, PIR sensor, Matrix Keypad, ARM, KEIL compiler

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INTRODUCTION

Now a day, cash payment is the only option for making the payment canteens or restaurants etc. This is the case for small canteens. In some of the big canteens credit card capability is providing but that's very rare. The main drawback of cash payment system is that user always needs to carry the cash with him/her. The person needs to pay the exact amount otherwise there is problems for the remaining amount. The owner has to maintain some register or he needs to deliver coupons to canteen users. If the canteen owner gives token for the remaining amount then user has to carry that coupon. One more problematic is that in colleges the students are going to have food in the same canteen throughout the month. In some of the cases an account of students is maintained in a notebook. The canteen owner writes record details of students who ever ordering food basis and at the end of the month total is calculated. This method has limit and draw backs of keeping paper based records. Suppose records can get spoiled or damaged and data of student account might get lost.

The restaurant menu, as we know it, has changed from its humble early stages on chalkboards and imageless print to today's detailed, colorful displays. The digital tablets and intelligible touch screen technology menus can move to emergence of a complete new surface. With this electronic menu, orders can be taken properly the first time. There is no need to run back and forth to an unfriendly terminal because the terminal is always with the server. Every order is connected with a separate seat at the table and orders are constructed one customer at a time just like on paper but with greater accuracy. Items can also easily be shared by the whole table stimulated or modified and noted and the cost can be considered in real time.

The Recommendation algorithm proposes dishes to the customers based on previous orders. It marks it easier for the customer to form his/her order and also view the most popular dishes. Moreover, various measurement filters can be used according to separate preferences e.g. Price, taste, quantity, etc.

2. EXISTING SYSTEM

In existing system, cash payment is only the option for making the payment. This is the case for smaller canteens. In some big canteens credit card capability is providing, but that's very rare. The main problem of cash payment system is that customer always needs to carry the cash through him/her. And the below figures are the students waiting for ordering food in queue manner. And he/she needs to pay the exact amount then there is trouble for the remaining amount e.g. the bill is 82 Rs and if customer pays 100 then the canteen owner has to give back Rs.18. This generates a problematic and if there is scarcity of coins then either the owner has to

maintain some register or he needs to provide coupons to canteen users. If the canteen owner gives token for the remaining amount then user has to carry that token. As shown in the figure1.1, figure1.2 shows the students are waiting in queue by ordering a food.

One more problem is that in colleges the students are going to have food in the same canteen through the month. In such conditions an account of students is maintained in a notebook. Canteen owner note down order details of students on daily and at the end of the month total is calculated. This method has restriction and draw backs of keeping paper based records. These records can get spoiled or damaged and data of student account might get lost.

3. PROPOSED METHOD

To give an effective solution for these problems we have implemented a project called "In-time billing process for canteen management system". For this project canteen owner or canteen administrative person is to give a RFID card from the customer or a user. This user can be a student in case of collages and a member in case of an organization or company. This system is very effective. For this system main advantage is that it is really help full and effective for those people who have to go to canteen on daily basis. They don't want to carry cash. A card is allocated to each user and user can recharge this card with a certain amount.

We can avoid the staying of students in canteen while running of classes and also we can restrict the presence of students in restricted timings of canteen.

4. TECHNOLOGY

The block representation of our project is shown below. It contains several blocks such as Microcontroller, power supply, Matrix keypad, RFID Reader, PIR sensor, Real Time Clock(RTC), 2*16 LCD Display.
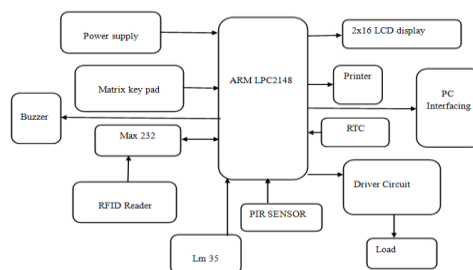

Figure 2: Block diagram of proposed system

Power supply unit is used to provide the power supply for the controller that organizes all the components in this project.

4.1 RTC (Real Time Clock)

4.1.1 Features

• Measures the passage of time to maintain a calendar and clock.

• Ultra Low Power design to support battery powered systems.

• Provides Seconds, Minutes, Hours, Day of Month, Month, Year, Day of Week, and Day of Year.

• Dedicated 32 kHz oscillator or programmable prescaler from APB clock.

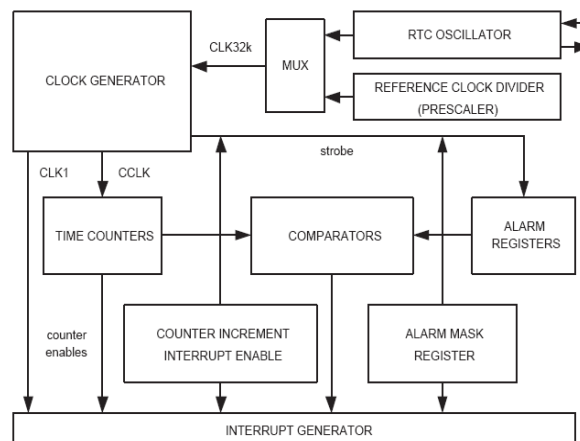• Dedicated power supply pin can be connected to a battery or to the main 3.3 V.

Figure 3: Architecture of RTC

4.1.2 Description

The Real Time Clock (RTC) is a set of counters for measuring time when system power is on, and optionally when it is off. It uses little power in Power-down mode. On the LPC214x, the RTC can be clocked by a separate 32.768 KHz oscillator or by a programmable pre-scale divider based on the APB clock. Also, the RTC is powered by its own power supply pin, VBAT, which can be connected to a battery or to the same 3.3 V supply used by the rest of the device.

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4.2 PIR Sensor

The PIR (Passive Infra-Red) Sensor is a pyro electric device that detects motion by measuring changes in the infrared levels emitted by surrounding objects. This motion can be detected by checking for a high signal on a single I/O pin.

PIR sensor features include:

• Single bit output

• Small size makes it easy to conceal

• Compatible with all types of microcontrollers

• 5V till 20V operation with <100uA current draw

Pyro electric devices, such as the PIR sensor, have elements made of a crystalline material that generates an electric charge when exposed to infrared radiation.
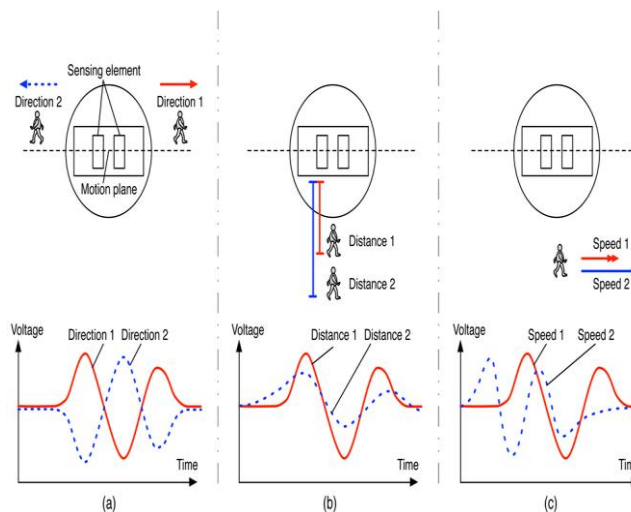

Figure 4: Working of PIR sensor

The changes in the amount of infrared striking the element change the voltages generated, which are measured by an on-board amplifier.

The device contains a special filter called a Fresnel lens, which focuses the infrared signals onto the element. As the ambient infrared signals change rapidly, the on-board amplifier trips the output to indicate motion.

5. WORKING PROCEDURE

At the time of Student joining in the college he/she has to take ID card and that ID has to be Recharged with some amount of money say 200-2000 Rs . The ID card is provided by college administrative or canteen owner. The student can use that id every time when ever he/she wants to take food in the canteen.
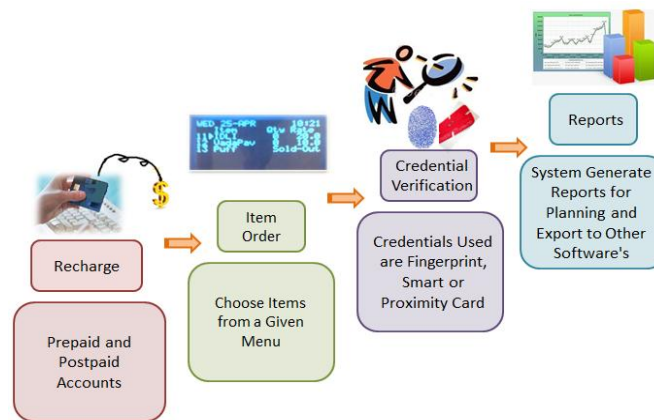

Figure 4: Working Procedure

The recharge may be prepaid or postpaid. If the amount is completed, again the id has to be recharged. By using this id the person can enter into the canteen by swiping this id.

Once after swiping, if the id is valid we can continue to the item selection. If the ID is invalid or containing less amount, the system will displays error like the id is invalid or not sufficient funds. Once the card is valid the person ID is authenticated and the particular person should be matched. Then the person can select any of the from the menu. For example in our project, the person can press the first button, the selected item name and cost is displayed on the LCD screen.

After the item selection, then the item list will be transferred to the pc in the kitchen. Then the server may serve the items according to the list which was selected by the particular person. The PIR sensor and Temperature sensor are used to automatic power on/off system. If the person enter into the canteen automatically the lights and will be powered on that particular table.

6. ADVANTAGES

1. Increases Efficiency by Reducing Time and Cost of Planning

2. Significantly Increases User's Satisfaction by Authenticated Data

3. Makes the Process Speedy and Secure through Cashless Transactions

4. Monitors and Analyzes Food Usage to Prevent Wastage

5. This project can be used in Schools, Colleges, Industries and Hospitals.

6. This project is easy to use.

7. Monitors and Analyzes Food Usage to Prevent Wastage

8. Allows Admin to Focus on More Productive Tasks

9. Allows Customization and Updating of Menu

10. Generates Reports for Easy and Fast Interpretation of Consumption

7 APPLICATIONS

We can use this project in security applications as

1. In Colleges

2. In Schools

3. In Industries

4. In Hospitals

8. CONCLUSION

To some extent the system has increased the efficiency in canteen daily business transactions. as compare to manual way of performing business transactions in the past, this new computerized system has faster and higher calculation capability. Therefore, it has increased the throughput of business transactions. Besides given correct input, the new computerized system can generate zero error, unlike manual work done by human.

The system give effective solution and also In-Time only bill will be produced. For that the students are particular time only stay at canteen. As a result, the students and the customer's satisfaction of service are relatively improved and this will attract new potential students to make order with the canteen.

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The student can recharge some amount to the card. This amount can use after completion of our college. In middle of our college amount is finished then we can recharge again and again in easy manner, and if the amount is there in that card after completion of college the amount is refundable.

9. Feature Development

Voice feedback system can be included in RFID based prepaid card for canteen management system.

Figure print authentications are also developed in canteen management system.

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