

A Review Based on Milk and it's Vending

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Abstract: Vending machines has played a vital role in making human life easier. Automated Vending Machines are highly helpful in providing various items needed for general people. Here we discuss about development of an automatic milk vending machine especially useful for people in southern India. Though there is some earlier version of these machines available, in this project, we focus on providing low cost simple design with better efficiency and payment methods. To eliminate the human involvement a card system is used for vending or for dispensing the milk. The card system contains the RFID which consist of RFID reader and RFID tags that can be user friendly.

Keywords: Microcontroller, RFID, Sensor, GSM

1. Introduction

In the present life situations, everyone uses cards to pay the money in grocery shops, shopping malls thus avoiding carrying the money and waiting time. In the milk centers there will be a big queue to collect milk because milk has to be measured and has to receive the cash. therefore, to eliminate the waiting time and paying money by cash, a microcontroller with RFID reader can be used in milk providing shops. Even though the micro controller can measure the flow accordingly to the user, but a person is still required to collect the money. To provide better and efficient transactions a card system is used for distribution of milk. The card system means it has RFID reader and RFID tags which are used by the customers for the milk centers which has to be recharge. With the use of RFID tags milk can be vended without the need of human interaction. The use of RFID traffic control is to avoid problems especially those related to image processing and beam interruption techniques are discussed. Each vehicle is equipped with a RFID tag. When it comes in the range of RFID reader, it will send the message to the police control room. The RFID reader will track how many vehicles have passed through for a specific period and determines the congestion volume [1]. In order to adapt the dynamically changing situations, Autonomous Decentralized System (ADS) was proposed. Each subsystem of ADS gathers vehicles waiting time information from the nearby petrol bunks, it autonomously judges the vehicles to move to the other petrol bunks having less waiting time. In this architecture, each node (petrol station) could estimate the length of vehicles waiting in queue and calculate the waiting time of the last vehicle [2].

2. Literature survey

A. Smart Milk Vending Machine

Yogesh R. Risodkar, Avinash S. Wagh, Anniket R. Bhaddive Mayuri P.Borade, Priyanka D. Kale, [2017] Proposed smart milk vending machine thus in the milk centers there will be a big queue to collect milk because milk has to be measured and also has to receive the cash. So, to stop the waiting time in the queue and paying money through hand, the RFID reader can be used in milk centers. With the help of flow sensor, we can measure the flow of milk through microcontroller, but a person is still required to collect the money. To eliminate the human involvement a card system is used for vending or for dispensing the milk. The card system includes the RFID which consist of RFID reader and RFID tags that can be helped to the customers at the milk centers. The card used to recharge because it is prepaid tags. Using this tags milk can be vended without human interaction or involvement.

They have studied many papers regarding this, in reference paper [2] presented a system a smart vending machine contains a sensor and actuator network which comprises of a gateway, environmental sensors, and controllers. A gateway becomes an extension between the network and an application running on a smartphone through Bluetooth. The gateway receives some messages related to the environmental conditions of the machine from the sensors. Those messages are sent to the application. In addition, the gateway sends control messages including the customer's preference on the taste of coffee to the controllers. They concluded that the proposed system is design to provide fast response serving, to solve real time problem. The improvement of the efficiency and design cost was considered. Using this system design, the efficiency of Vending machine can be easily enhanced for many applications. Complexity reductions that involve with the time and space increase the efficiency of the overall system used in vending machine. Also, we are going registered database of the customer by reducing human interaction. The future work of this vending machine is to improving it by adding toll free number in case of any failure. Also, we suggest that the machine design to be able to accept ATM cards instead of paper money. Also, improving efficiency and complexity reduction of the machine will be possible in order to convert the Vending machine to an intelligent

approach.

B. Smart Coffee Vending Machine Using RFID

Rahul Jadhv, Mrunali Jejurkar, Pranita Kave & H. P. Chaudhari [2017] Proposed smart coffee vending machine using RFID. Automatic regular coffee vending machine including coffee powder or coffee beans, sugar, and milk powder stored in chamber. It also includes the hot water chamber where the water is heated. After giving command through a switch the machine add that specific amount of ingredients in the hot water. And then it gets delivered in the cup. The controlling mechanism like heating is done by the use of microcontroller. This project focuses on automatic coffee vending machine using the Arduino controller and RFID technology which is used to control the consumption of product and also reduce the waste of product in low budget and also gives the historical data in EPROM.

C. Development of low cost portable automatic milk vending machine

M. Dinesh Kumar [2018] This paper discusses about development of an automatic milk vending machine especially useful for people in southern India. Though there is some earlier version of these machines available this project paper focuses on providing low cost simple design that could be easily accessed by common people.

We had a survey with our project team in some parts of Karnataka, yes government of Karnataka and some commercial companies have installed these water vending machines in public places like railway stations, bus stands etc. [3]. but we have discovered a lot of disadvantages and un similarities in these water vending machines they are as follows, first the huge machines cause the difficulty of shifting and installing, second the investment is very high (around 3-5 lakhs rupees) and cannot be transported easily finally the maintenance is very high. After observing some of these problems we have decided to overcome these problems with some of small solution that we could do [4]. On the basis of our survey it is found that the present coin operated milk vending machines are huge and occupy more space and cannot be utilized in all the required places. The main objective of this project was to provide purified portable milk at economical cost in pre-filled milk packets on a low-cost portable vending machine [5].

As the milk vending machine will be a huge turn over for the companies and the people will be treated equally as everyone can access the machine. Milk supply around this area can be equally distributed through these vending machines. Only the needed amount of milk can be taken from the machine and can avoid milk wastage. Payment can be made easier and simpler. These types of vending machines can be used for all sort of beverages and consumer products.

D. Classification of A1 Milk and A2 Milk by Observational and Scientific Methods

Sheshagiri Jois, Bindu Shree, Chethan A. R, Kiran Naik C.

P, Sachin S [2018] This paper discussed about Milk from dairy cows has been regarded as nature's perfect food, providing an important source of nutrients including high quality proteins, carbohydrates and selected micronutrients. Recently, a relationship between disease risk and consumption of a specific bovine β casein fraction with either A1 or A2 genetic variants has been identified. It is a matter of great concern for the public health and hence there is a need to crosscheck our breeding policies, so that the purity of desi breeds and their beneficial qualities can be conserved. This is performed by using combined electronic sensory instrumental system such as color sensor, fat measuring assembly, pH sensor and air quality sensor. Complex data sets from the color sensor, fat measuring assembly, pH sensor and air quality sensor are combined with multivariate statistics represents rapid and efficient tools for classification, discrimination, identification of type of milk and ensure the quality of milk. This project is implemented using ATMEGA328P microcontroller. All the sensors are combined to form compact and flexible system which analyze and classify the type of milk into different grades and finally output displayed on LCD screen. Problem faced by the individuals can be prevented by detecting the type of milk, and also prevent from causing the hazardous diseases by detecting the A1 type. The milk parameters such as fat, color and thickness are measured by our system and are consistent with standard values and PH and odor have given clear difference between A1 and A2. Mentioned parameters can successfully differentiate between A1 and A2.

3. Methodology

In the proposed project, refrigerated containers will be used for the storage of milk. From the main container, the milk will be separated into three different qualities based on the pH value, water content and the viscosity of the milk. This bifurcation of milk will be done using the quality analysers. Use of pH meters for quality check and for the purpose of the classification of milk into three sub categories is proposed. After the consumer inputs the values of required quality and one available standard quantity in the numeric keypad, the machine will ask for payment. For the process of payment, rechargeable cards with RFID will be used. This gives an efficient method of payment. The milk will be dispensed from the outlet after the payment procedure will be done. LCD display with details about quality of the milk, and the purchase details of the consumer will be available in the front-end display. A GSM module along with level sensor will be used to notify the manufacturers or the milk distributor for the refilling of milk in the containers once it gets used up. For the purpose of cleaning, Hot water must be run through the machine before every refill, and if the proposed project is to be commercialized, a maintenance team can be assigned for the machine to monitor the usage and cleanliness etc. This can also increase the employability.

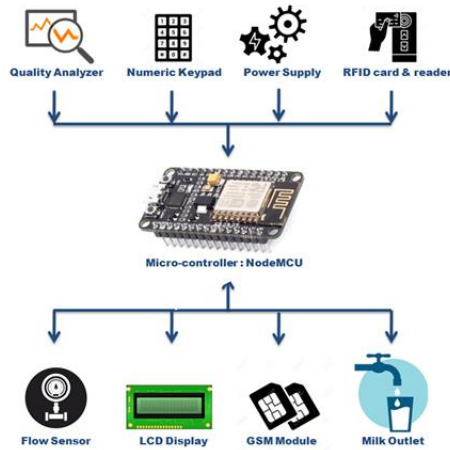


Fig. 1. Block diagram for the proposed system

4. Conclusion

This paper presents a view on history of technical issues and challenges of vending machines. As the milk vending machine will be a huge turn over for the companies and the people will be treated equally as everyone can access the machine. Milk supply around this area can be equally distributed through these vending machines. Only the needed amount of milk can be taken from the machine and can avoid milk wastage. Payment can be made easier and simpler. The technology of this vending machines can be used to facilitate all kinds of food consumer products. And in future for making this more reliable the system

can be implemented online for effective processing the product distribution management.

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