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# Data Management of Milk Dairy using Cloud Application's

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**ABSTRACT:**Data management of milk dairy using cloud application is automated mainly using the IoT. The inefficient method of collecting and managing of the data is overcome using this method. RFID technology is the main key component for the entry of the data. WSN is utilized to get the on-going information from the milk dairy. In the wake of breaking down that information programmed choice is made to realize that information is substantial or invalid. After that Automatic recognizable proof and information catch [AIDC] similar information is put away in the Cloud stockpiling. From the distributed storagewe can get to the information anyplace and whenever. The weight sensor gives the amount affirmation of the milk. The instalment is made reliably on the everyday value premise with the quality substance. So these all-encompassing applications concerning the dairy business is helpful for the ranchers just as for the executive of the dairy business.
**Index terms:**IoT, RFID technology, LDR, WSN, Cloudstorage.

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## I. INTRODUCTION

Every one of the fields is tolerating the Automation. As that the Dairy the board procedure is likewise empowering the IoT Technology. It limits the issues that are looking with the Quality substance and the installment issues. On the spot figuring of the measure of the milk and getting to and refreshing an opportunity to time information and the immense measure of information keeping up progressively is accomplished by IOT.

PC supported control of the information is limits the upkeep of the printed version. By the Radio recurrence distinguishing proof card as like the standardized identification is utilized as the one of a kind recognizable proof. Utilizing that RFID innovation with the WSN with the arrangement of sensors the ongoing information with the Quality components are put away into the cloud. In view of the everyday update of the expense of the milk per liter considering the quality factor the sum is paid to the end client without the interface of the center man. In the meantime a GSM based message is sent to the end client. The day by dayrefreshes or the week by week synopsis or the month to month rundown anything can be seen or overseen by the administrator at the locale focus whenever and anyplace. So the information misdirecting is controlled. This computerization is finished with the Raspberry pi and the related sensor Modules. .

## II. LITRATURE SURVEY

Rupakchakravarthy et.al [1] illustrates a novel paper that shows how the delivery system has been improved by the ensuring prompt payment to farmers and instilling their confidence in the cooperative set-up and also minimizing the problems of adverse selection and defeating corruption.

SubashBhatnagar et.al [2] illustrates the survey paper that shows how to set up rural internet Kiosks it is imperative that communication service reaches rural India. Each card is issued as a plastic card as ID. At the counter farmer drops a card into a box that reads it electronically and transmits the identification number into the PC.

Yadav S.N et.al [3] illustrates the survey paper presents a detailed view in the dairy management. The milk collection parameter such as FAT, weight and CLR are measured. The use of smart card or the RFID to enter the dairy billing for a farmer makes it convenient for the dairy management and farmers to keep account of the entries made for a month and are very beneficial to the farmers or end users.

Information about the raspberry pi is from this site [7] and working with IoT is given with the textbook [8].

## III. SYSTEM REQUIREMENT SPECIFICATION

System requirement specification gives details about the requirements of the particular project implementation. It provides the information about the hardware configuration and software configuration for the development system and also the functionalities involved in the developing system. It also includes a general description of the product perspective, productfunction and certain

user characteristics of the system. The SRS is a means of translating the idea in the mind of the clients (the input), into a formal document (the output of the requirement phase). The Software Requirement specification document is organized in such a manner it aids validation and system design.

1. Hardware module

Sensor module is having the Weight sensor,LDR is used to quality of the milk detection. Using RFID card and RFID reader we can store the data to the cloud. And those sensors are connected with the cloud interface. This module is having the connection with cloud/Analysis module and User module.

2. Cloud module

Cloud module consists of a cloud server and the database within it. The cloud database stores the data retrieved from the hardware module. The sensed data is collected and stored in database of cloud server. The remote data monitoring facility is given by this module. And the analysis part of the project is takes place in this module.

3. User module

In this module the database and WebPages are accessed by the end user. WebPages access the data from the database. That data is displayed on the WebPages. The separate WebPages are designed for both admin and consumers. A well designed web interface/application is designed.

## IV. ARCHITECTURE DIAGRAM

Raspberry pi is the main controlling system for all the devices. We can get the data using the sensors. Quantity of the milk is measured by the weight sensor and the Quality is measured by the LDR. All the data's are stored in Raspberry pi. And that are displayed in the LCD display for local users, Raspberry pi stores all the data to the cloud storage by using the key as RFID ID. The RFID reader is used to read the data of the RFID card. Data analysis technique is also made from these data. Then, using the quantity data the amount is credited to the users account automatically based on the daily cost. These data can be supervised by the district centers. So, the Data management and the whole system is Automated.

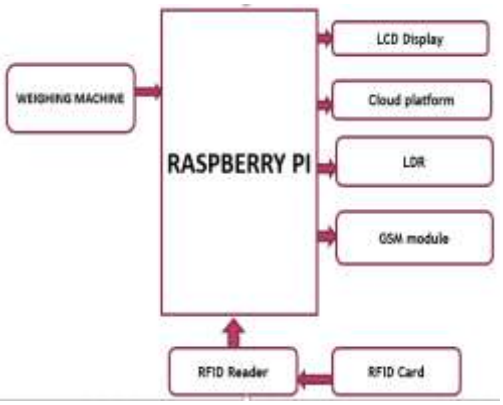


**Fig 1:** Block diagram for the Data management of milk diary using cloud application.

## V. COMPONENTS REQUIRED

The components details that are used are given as follows.

1. Raspberry pi

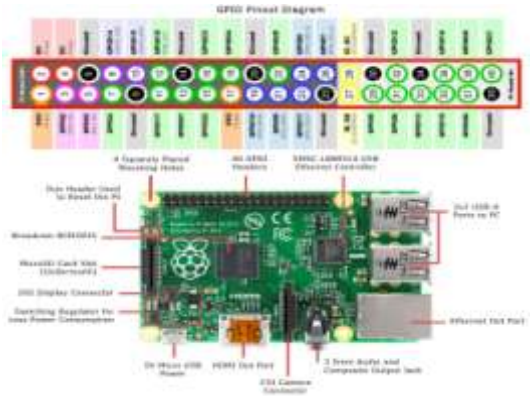

**Fig 2:** Raspberry pi0

The hardware which I have chosen for this project is Raspberry Pi 0. Raspberry pi is commonly called as R-pi or Raspi. Raspberry pi is the portable device with the single board and it has the size of credit card, so it is useful for carrying. Cost of Raspberry pi is low compared to the CPU and it is worked very similar to the CPU. Applications of Raspberry pi are playing games, spread sheet and also the video playing, word processing, Internet of things applications and almost all the tasks run by the computer. The working of the Raspberry pi is as same as the CPU so that it has the miniature structure that includes USB ports for connecting mouse, keyboard and also for the USB devices. A power source connecter, from this it connects to the power. For Raspberry pi Boot up it consumes very less power supply. It has no hard disk so, for the storage purpose we are using the memory card as the storage device. A Ethernet port is present and Broadcom BCM chip is present. For the programming and hardware connection purpose the

GPIO pins are used. For the boot up process the OS is in the memory card. Raspbian is the OS used for Raspberry pi. With some slight modifications it is working as same as the CPU.

2. Weight Sensor

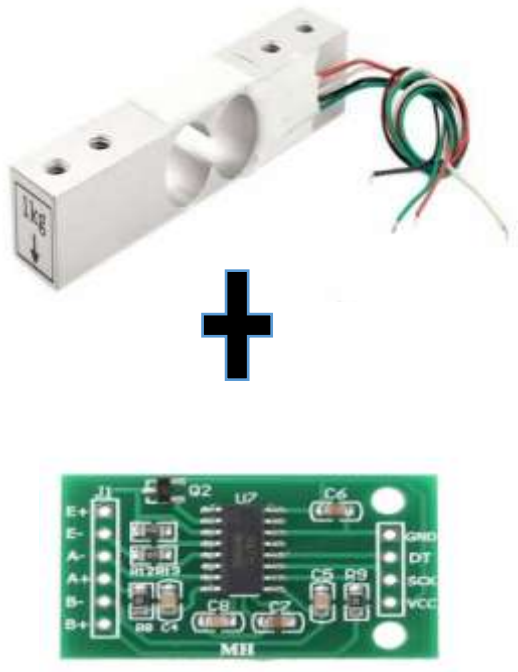

**Fig 3:** Weight Sensor

Two selectable differential input channels.A built in on chip voltage controller, ADC and oscillator, On-Chip Power-on-reset Simple Digital Control and Series Interface: Pin-driven Controls, No Programming Required. Selectable 10SPS or 80SPS output data rate, Current consumption including on-chip analog power supply regulator: normal operation < 1.5mA, power down < 1Ua, Operation supply voltage range: 2.6 ~ 5.5v, Operation temperature range: -40 ~ +85℃.

3. LCD Display

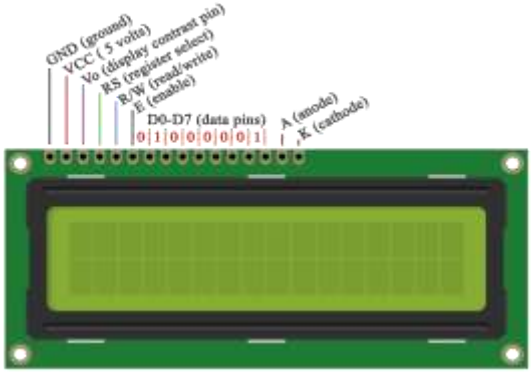


**Figure 4**: LCD Display

LCD Display is the abbreviation for the Liquid crystal display. This is working on the principle of blocking of light. For the purpose of displaying a message or the value the LCD display is used. Here, we are using 16*16 LCD display. The LCD displays gives the advantage in the display components. They are replacing the Cathode ray tubes. LCD displays consume less power compared to the cathode ray tubes and also these are light in weight.

4. RFID Reader

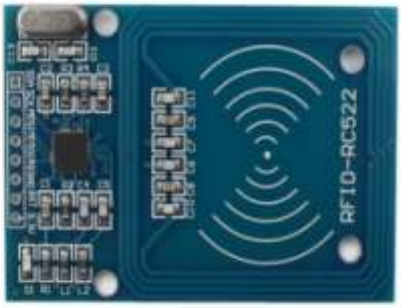


**Fig5:** RFID Reader

RFID reader is the device used to get the information from the RFID tags. RFID reader is means to the Radio Frequency Identification reader. The main mechanism used between the reading and storing the data is radio waves operation. This, RFID technology is very similar to the operation of the Barcodes. The difference between the bar code and RFID technology is Bar code scanner scans the data from the barcode directly. But, in the RFID it can gather the data from the RFID tag in within some range. That range is from 3 to 300 feet. Advantage of the RFID reader is quick scanning and Fast identification. And RFID codes cannot be duplicated but it is costly compared to the Bar codes.

5. RFID card

**Fig 6**: RFID card

Radio-frequency identification card has a unique ID and that helps the user to read the data using RFID reader. RFID card uses the electromagnetic field while tracking and identifying the tags that are attached to the objects. RFID tag contains the data that are electronically-stored. RFID is of 2 types. One is active RFID and another one is passive RFID. Difference between the active and passive RFID is get the energy from its nearest RFID reader that is interchanging its radio waves with it and the Active RFID get its power from the battery source or the local power source. Active RFID tags are used with the moveable objects also. The operating distance of the Active RFID is up to 100 metres. And passive RFID card and its reader distance is low. RFID is best suitable for the Automatic Identification, Data Capture. So, they are used for industrial usage purpose. In the process of automatic identification of data, collecting and storing the data into the database in local or global storage need not including any intervention of human in it. So, it is best suitable for the automation projects. In the RFID systems it is also one of the major components. Another two major components are RFID reader and the antenna. RFID card contains the integrated circuit within it. For the transmission of the data it also contains the antenna. Antenna transfers the data from the RFID card to the RFID reader it is also known as interrogator. RFID reader receives the radio signals and converts it into the data.

6. LDR

Fig 7: LDR

An LDR is a factor that has a (variable) resistance that changes by intensity of light falling on it. This allows them to use light sensor circuits. LDR resistance can usually have the following resistanceDaylight= 5000Ω, Dark= 20000000Ω

## VI. RESULTS

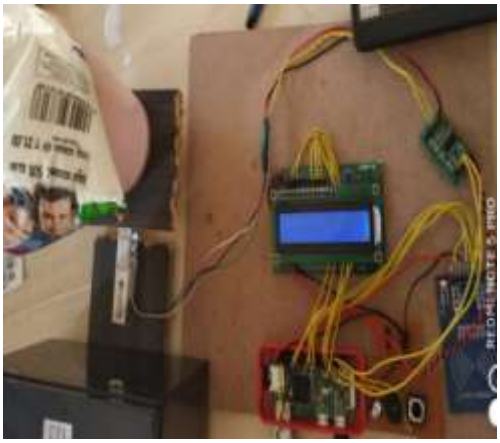

**Fig 8:** Hardware module

Above the fig 8 shows Data management of milk dairy using cloud application hard ware module setup.

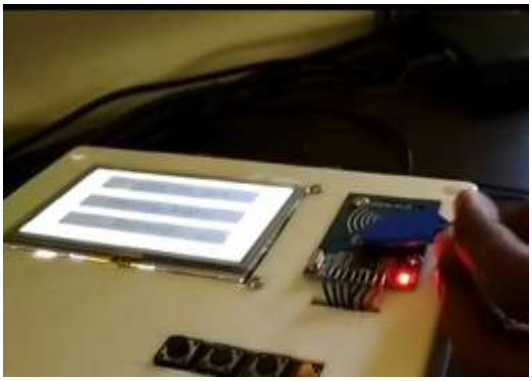

**Fig 9:** Swipe the RFID card

Fig 9 shows swipe the RFID card, The farmer will be provided by the smart card, there will be unique ID for all the farmer, using that ID the individual farmer information will be stored under that ID, when a smart card is swiped the data should matched and it should give a authentication to the next process.

Then the farmer should pour the milk to the can where it will measured using the Weight sensor, then the quantity of milk measured will be automatically updated to the corresponding farmer's database which is in the cloud.

**Fig 10**: Store the date in UBIDOTS cloud platform

Fig 10 shows the individual farmer data can be stored in cloud platform, its access to admin at any point of time.

Database shows the quantity of milk which is poured at the particular date and time and the respective calculated amount for that milk, the complete data can be accessed by the government for further transactions.

**Fig11:** MESSAGE sent to farmer.

Fig 11 shows quantity of milk which is poured at the particular date and time and the respective calculated amount for that milk, that message is sent to farmer mobile phone.

## VII. CONCLUSION

The IOT implementation with the dairy and data management, the immediate payment of the amount will be delivered. Accurate information about the Milk such as fat content, quantity of the milk, quality of the milk is automated. And the payment to the farmer is displayed. Accurate measurement and payment is made so the whole system is successfully delivers the amount to the farmers without delay and the hardcopy of the data is minimized so we can access the data at anytime and anywhere. Also we can track the data, in future days the prediction of the quantity of the milk is also made.

## ACKNOWLEDGMENT

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