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A SMART WATER LIFTING SYSTEM FOR IRRIGATION DEPARTMENT

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ABSTRACT
In India water lifting is the large problem people living nearby lakes and dams use the water of lakes and dams without the permission of the government they have to went to the dams to operate the motors for water lifting similarly the level of water to be utilized by them is more than what the government has decided for each motor. They use the electricity of irrigation offices and don't even pay the bills for electricity or service fees. So to reduce this things from happening we are creating a system which will be operated from homes and they will be charged for the level of water and electricity they are going to use. In this system we will have a wireless operate motor which can be operated from remote location also. Other than this the amount of electricity and water they are use the bill will be charged to them which will be send on the application as well. If the user does not return the bill the system will stop and he could not use the motor. So this system will help the people utilize only that much what the government has decided and they will only have to return minimal amount for that.

INTRODUCTION
In what is labelled as the "Global Water Crisis", UN and the World Bank released predictions of scarcity of clean water resources and as a corollary, the calamitous effect on agriculture as the demand increases, what now with exchange periods of hot weather and droughts Inevitably, the effect will ripple over across the quality of life people lead in areas with direct contact to the cultivated lands as well as areas who depend marginally on them to supply their food production. The world's demand for water is likely to surge in the next few decades where rapidly growing population will drive increased consumption by people, farms, and companies. Water availability of regions naturally liable to dryness like the Arabian Peninsula are expected to drop by half in the next 25 years include raising the price to pose such restrictions. However, while this helps conserve water when resources are depleting, it does pose a challenge to farmers on how to Micromanage their business to adapt to this change. To add to that, climate change is expected to make some areas drier and Water going into the sector, one would expect an over-abundance of water resources dedicated to agriculture Others wetter, making the need for proper efficient irrigation management systems all the more necessary Agriculture remains the world's biggest water consumer, with farming and food production accounting up to 70% of it.With so much Water going into the sector, one would expect an over-abundance of water resources dedicated to agriculture.

METHODOLOGY

IDEA Matrix:

There has been rapid advancement in wireless communications and networks. Cognitive Radio is a smart, adaptive radio and network technology that is capable of detecting available channels in a wireless spectrum automatically and modify transmission parameters; enabling greater communications to run in parallel and also improve the behaviour of radio operation. Cognitive radios (CRs) have been proposed as an up-and-coming solution to enhance spectrum utilization by means of opportunistic spectrum sharing. There are various issues in CRN such as primary signal sensing, jamming attack, overlapping of secondary users, etc. Various measures to counteract these have been given such as energy-based sensing, location consistency checks, Nash equilibrium techniques, etc. In a CR network, primary (licensed) users are given priority over secondary (unlicensed) users while accessing the wireless channel. Thus, if a virulent secondary user exploits this spectrum access convention by imitating the spectral characteristics of a primary user, it can gain priority access to a wireless channel over other secondary users. This can be detected using RSS (Received Signal Strength) technique. The idea framework for CR project is depicted in gure. CR has increased the Usage of spectrum. When the spectrum is not being used by the primary user it will be used by secondary user. In this way, we are avoiding wastage. CR contains the malicious attacker which are being detected by the system and access to malicious user will be ignored. It improves the e ciency of network by avoiding the malicious user (PUEA).In previous system the frequency band used to remain idle. This system has overcome the problem and decreased the idle time of system by dynamic allocation. Ultimately it evaluates the ratio of usage of frequency bands.

Navie Bayes:

Navie Bayes is a probabilistic classification method based on Bayes theorem (or Bayes' Law)
With a few tweaks. Bayes theorem provides the relationship among the probabilities of 2 events with their conditional probabilities. Bayes law in named after in English Mathematician Thomas Bayes. A Navie Bayes classifier consider that the existence or nonexistence of a specific feature of a class is not related to the existence or nonexistence of other features.
E.g.:- Classification of object can be done on the basis of its attribute like shape, color and weight.

Classification:

The first simplification includes the use of conditional independence assumption that means every attribute is conditionally not dependent on each other attribute provided a class label c, Observe the Equation1,

$$P(a1,a2,\ldots,am|c1) = p(a1k1)\ldots P(am|c1) = \prod_{J=1}^{m} P(a1|c1) \quad \text{---- 1}$$

Hence, the naïve assumption simplifies the computation of P(a1,a2,…,am|c1).The next (second) simplification is skipping the denominator P(a1,a2,…,am) since P(a1,a2,…,am) present in the denominator of P(c1|A) for each and every value of I, skipping the denominator will not impact the relative probability scores and calculations will be simplified. The classification of navie bayes applies the 2 simplification stated here and, as a result, P (c1|a1, a2, …, am) is proportional to the product of P (a1|c1) times P (c1).It is illustrated in Equation 2,

$$P(c1|A) \alpha P(c1). \Pi P(aj|c1)\ i = 1, 2,\ldots n \quad \text{-------.2}$$

The mathematical symbol α states that the LHS P (c1|A) is directly proportional to the RHS.

Algorithm:

The Conditional Probability regarding the event C happening, provided that event A has previously occurred, is represented as P(C/A),which can be found with the help of formula in Equation:

$$P(C/A) = P(A \cap C) / P(A) \text{ ----- } 3$$

Now we can get equation 3 above sub minor algebra and substitution of the conditional probability

$$P(C|A) = P(A|C)\, P(C) / P(A)$$

Here C is the class label C € $\{c_1, c_2, \ldots, c_n\}$ and A is the observed attribute= $\{a_1, a_2, \ldots, a_m\}$.
Equation 1 can assume as the most common form of the Bayes' theorem. Mathematical point of view Bayes; theorem provides the relationship among the probabilities of C and A, P(C) and P (A), as well as the conditional probabilities of C provided A and A provided C, namely P (C|A) and P (A|C).Bayes' theorem is significant because quite often P (C|A) is much more difficult to compute than P (A|C) and P(C) from the training data. By using Bayes theorem this problem can be circumvented.

EXSITING SYSTEM

In Drinking water treatment plant (DWTP), in village area done to the self-creating pumping operation. However, the consequences of a human error in these tasks can be: waste of water (vital resource) and energy consumed by the pumping system, and shortages from the DWTP to users.
Display to the design low cost of technology for automation, the water pumping and storage department apply for DWTP. As a result of the project, a prototype was developed with electronic components compatible with the IoT paradigm, and it was applied in the purification stage of the DWTP of the city of Catamayo. To evaluate the operation of the prototype of the automation system, data was obtained from the input / output variables, for 24 hours every 6 seconds. The variables simultaneously acquired in field tests were: minimum level status, maximum level status, pump activation status, and manual / automatic mode of operation. With the signals, it was possible to confirm the correct logic of the pump drive and the high efficiency of the communication system.
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SYSTEM ARCHITECTURE

We are introducing a smart system by using the IOT technology that allow farmers to operate motor by mobile devices form anywhere, Other than this the amount of electricity and water they are using the bill will be charged to them which will also be send on the application as well. If the user does not pay the bill the system will stop and he could not use the motor. So this system will help the people utilize only that much what the government has decided and they will only have to pay minimal amount for that

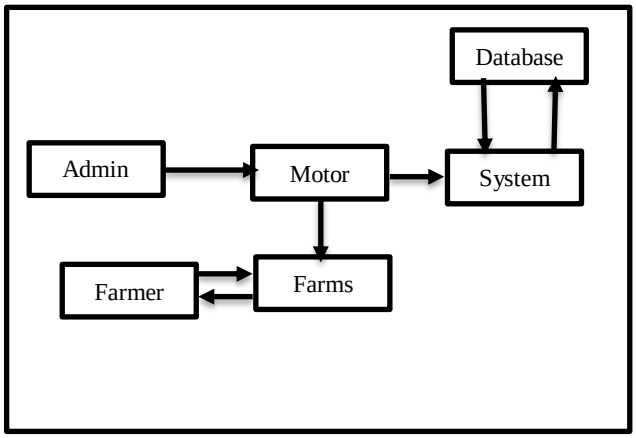

Fig: 1.1 Architecture Diagram

Advantages of Proposed System

- Centralized management system
- Reliable
- Scalable
- Online Payment
- Motor Automation and tracking

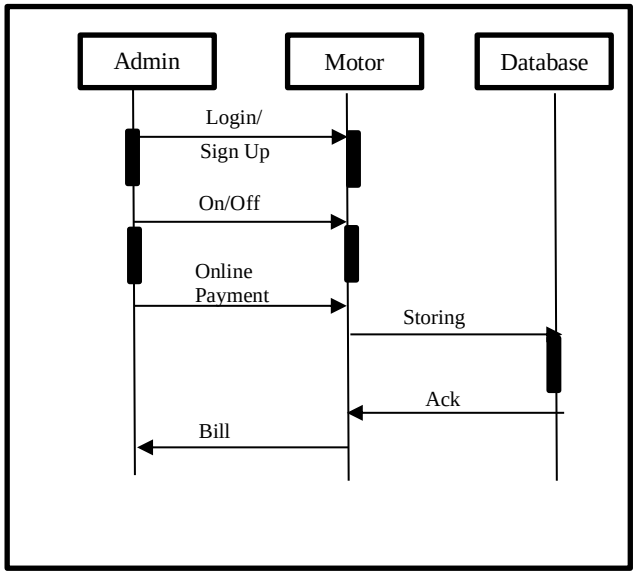

Fig: 1.2 Sequence Diagram

MATHEMATICAL MODEL

S = (I, O, F)
Where,

- S: System.
- I = {S, E, T, WC} are set of Inputs

Where,

- S: Start
- E: End
- P: Payment
- WC: Water Control
- F = {F1, F2} are set of Function

Where,

W1: Water calculation
BC: Bill Calculation

- O= {O1, OP} are set of Output

Where,
O1: Controlling the motor
OP: Online Payment

SYSTEM IMPLEMENTATION

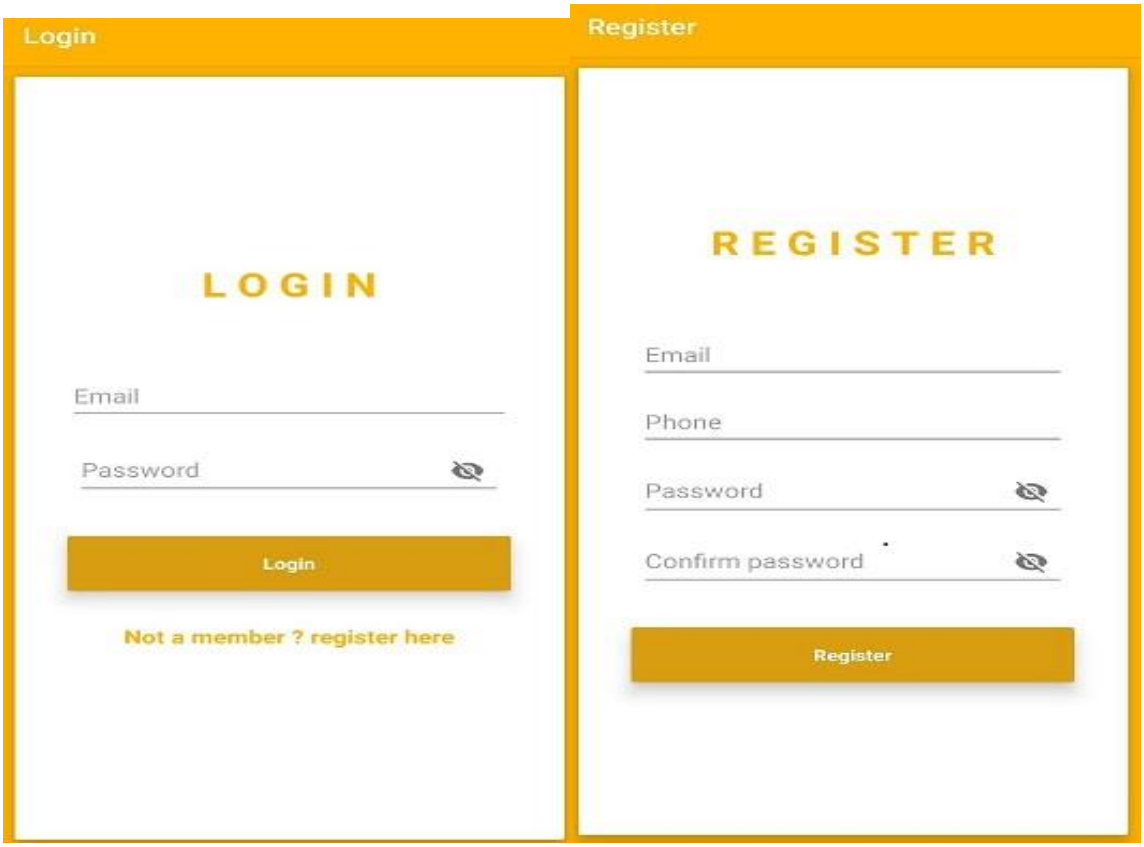

Fig: 1.3 Login Page Fig: 1.4 Registration Page

Fig: 1.5 Water Flow Count Sensor Fig: 1.6 Flow Sensor

- The green color motherboard is also known as PCB which is created by JLC Company.
- The black screen monitor is Node MCV or ESP8266 which is used to display the message.
- Flow sensors are used.
- On the right side of Node MCV- vibrator is used
- Some resistor pins are used above the vibrator
- Some input/output or Digital pins are used to connect with Flex sensor.

CONNECTIVITY:

1. First the register on the app fill the information in registration application then the login the user id and password.
2. Then start the process of water supply for the farm.

3. Irrigation department database in the store the data.
4. Motor connect to the sensor flow sensor sense the which amount of water are flow.
5. Motherboard are detect the all process of flowing water and level or amount are display on the screen.
6. Water are not water and more water save through the sensor.
7.Farmer or any person have to more water than the farmer/person send to the request irrigation department this request acceptance is depend on the reason of that switchvation.
8. Farmer/person have water in emergency then irrigation department on the switch.
9. Sensor are most important part in the irrigation, flow sensor motherboard are important in the irrigation.

CONCLUSION

IoT technology were display as a strategy to develop an intelligent irrigation approach that fosters water conservation and better irrigation management in areas with huge levels of water stress, efficiently set the time and duration of irrigation for a given crop. The system is easy to implement and economically justifiable.

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