A Smart Water lifting System for Irrigation Department

[1]Prof. P.R.Kulkarni, [2]Pradnya Pathare, [3]Nikita Kothule, [4]Neha Hadge

SIEM Computer Department,
Nashik, India

***Abstract*: In India water lifting is the major problem people living nearby lakes and dams use the water of lakes and dams without the permission of the government they have to go to the dams to operate the motors for water lifting similarly the amount of water to be utilized by them is more then 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 amount of water & electricity they are going to use. In this system we will have a wirelessly operated motor which can be operated from remote location also. 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.**

***Index Terms*: Bills, Permission, irrigation offices, Farmers.**

I. 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 extended 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 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 [2, 5]. With so much water going into the sector, one would expect an over-abundance of water resources dedicated to agriculture.

II. LITERATURE SURVEY

1. Speed control of solar water pumping with indirect vector control technique:-

In this paper deals with solar based indirect vector controlled induction motor drive (IMD) for water pumping system. The speed of IMD is estimated by taking stator current and rotor ux as a state variable. It consists of a solar photovoltaic (PV) array, boost converter, voltage source inverter (VSI) and a motor-pump assembly. In spite of atmospheric variation, maxi-mum power point tracker (MPPT) based upon an incremental and conductance (IC) algorithm tracks maximum power from solar PV array. The proposed system is designed and simulated in MATLAB/Simulink platform and speed control of IMD is demonstrated through simulated results.

2. The Utilization of Fuzzy Control in Energy Saving Control System of Water Source Heat Pump:-

This paper introduces that water source heat pump is successfully used in Xiang-tan city. The PID fuzzy control method of water source heat pump is brought forward for the reasons of complicacy of water source heat pump system, plenty of controlled variables, nonlinear, time delay characteristic and bad adaptability. This method can get high precision, rapid dynamic response and work well in reality. Then, this method is a solution to cient operation of water source heat pump.

3. Stringing Subtitles in Sign Language:-

This research uses the extension neural network type-1 (ENN-1) method for air pollution inspected by remote sensing data of automobile's exhaust. The outdated automobiles emit exhaust as part of the moving air pollutants. To lessen the air pollution actively and improve the e ciency of remote sensing tools, this paper develop an automatic inspected method based on the ENN-1 and using the data of automobile exhausted telemeter, the ENN-1 can embed the salient features of parallel computation and learning capability. The experimental results show that the proposed method has less learning time, high classicatory accuracy rate, and fault-tolerant than the other methods.

4. Controlling strategies of systems combined water source heat pump with thermal storage:-

The operation controlling plays a key role for realizing the advantages of water source heat pump and thermal storage in the integration systems. Using the conventional PID controlling method, parameters cannot be adjusted to optimization following with real time changing operation conditions. The application of fuzzy PID method is presented for improving accuracy and precision of controlling system. The controlling models of the main equipment's in the system combined the water source heat pump with the thermal storage are studied. Based on the auto-adapted fuzzy PID control theory, the system dynamic operation controlling is simulated. Taking a real building as an example, the controlling methods of fuzzy PID and conventional PID are applied separately for the two operation situations which are cooling supplied by the ice storage and cooling supplied by the chiller. It shows that the fuzzy PID control method is better than the PID control method, which has less time consumption and higher precision and less temperature actuation. Optimal control of water supply, IEE Colloquium on Control and Optimisation Techniques for the Water Industry. The objective of the research work is to integrate the basic applications modules to generate automated, online, closed-loop control systems for water distribution networks. Such control systems will provide optimal scheduling of available pumps for least cost operations, while maintaining reservoir storage and pressure levels and satisfying demands. Monitoring and regulatory activities form an integral part of such systems, ensuring continuing safe operations

III. 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.

IV. 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

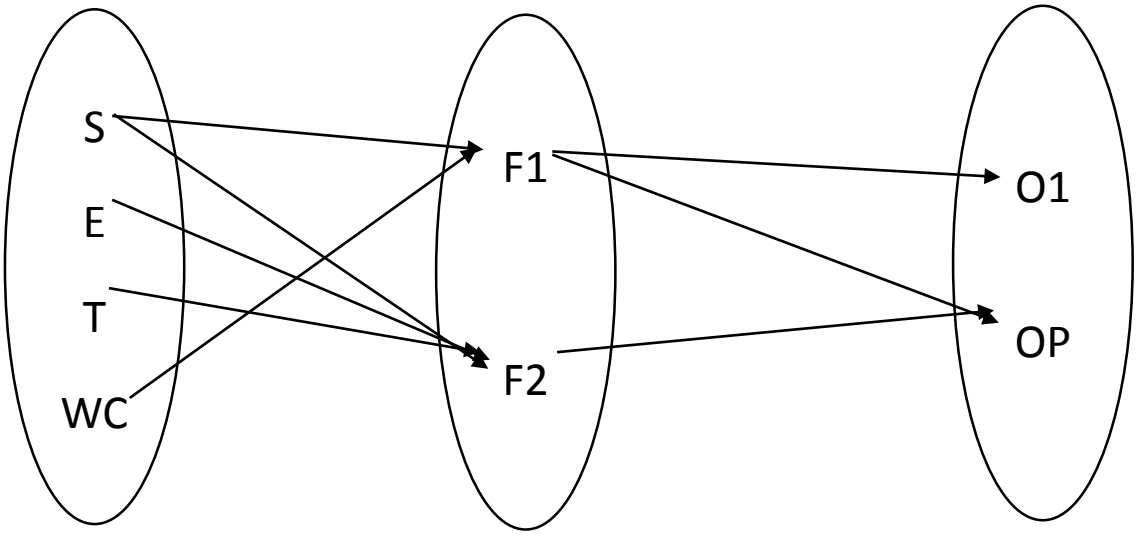

Figure 1: Venn diagram

- **Success Conditions :**

Sensor embedding, Location details, proper database.

- **Failure Conditions :**

No database, internet connection

V. SYSTEM ARCHITECTURE

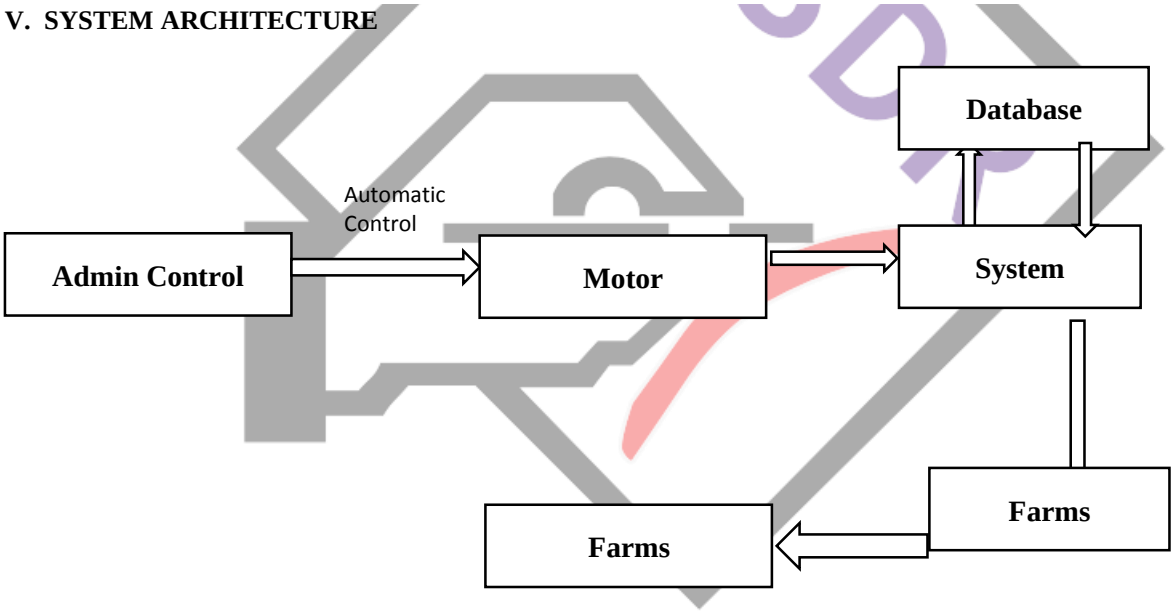

Figure 2: Water Lifting

In the Above diagram we have shown that the process work of Water Lifting:-

1. Admin panel Use For registration process customer/farmer are register.
2. Registration Process are complete then farmers/customers data are store in system database.
3. Motor are connected the admin panel and the irrigation department, admin panel thru the water supplier on/off.
4. Time up then water supply stop, which water are supply are count thru the sensor and water supply time are count.
5. More water required for farmer farm then farms send the request admin panel request acceptance depend on his/her requirement important or not (else condition yes or no).
6. Then Motor start and sensor sense which q/sec water supply and add in his/her database.
7. Water Save this system count are available on irrigation department.

REFERENCES

1 .L. Herrería, and J. Baquero, “Diseño e implementations Del Sistema de automatization de la planta de-tratamiento de agua Los Álamos y sus tanques de distribution”, B.S. thesis, EPN, Quito, Ecuador, jun. 2016.

2 .M. A. Cervantes, F. J. Recendez, and Á. I. Vargas, “Modernization del Sistema de control para el tratamiento de agua de la planta la Purisima no. 5 del scam”, B.S. thesis, IPN, México D.F., México, jun. 2011.

3. L. V. Jácome López`, “Automatization del bombeo de agua a travels Del control de nivel de la cisterna de la Estacio Miraflores EP-EMAPA”, B.S. thesis, UTA, Ambato, Ecuador, Jul. 2015.

4. C. Calderon-Cordova, L. Quichimbo and F. Reyes, "Development of hardware architecture applied to real-time monitoring in drinking water distribution system of the Loja city," 2016 11th Iberian Conference on Information Systems and Technologies (CISTI), Gran Canarias, 2016, pp. 1-8.

5. C. Calderon-Cordova, A. Jaramillo, C. Tinoco and M. Quiñones, "Design and implementation of an architecture and methodology applied to remote monitoring of weather variables," 2016 11th Iberian Conference on Information Systems and Technologies (CISTI), Gran Canaria, 2016, pp. 1-8.

6. W. Hernandez, C. Calderón-Córdova, E. Brito, E. Campo Verde, V. González-Posada and J. Zato, "A method of verifying the statistical performance of electronic circuits designed to analyse the power quality", Measurement, vol. 93, pp. 21-28, 2016.

7. C. A. Calderon, C. Ramirez, V. Barros and G. Punin, "Design and Deployment of Grasp Control System applied to robotic hand prosthesis," in IEEE Latin America Transactions, vol. 15, no. 2, pp. 181-188, Feb. 2017.

8. H. Oña, and G. Rodríguez, “Diseño y constructions de un baño maría utilized un controlador PID Fuzzy para el Laboratorio de Inmunología de la Universidad de las Fuerzas Armadas”, B.S. thesis, ESPE, Quito, Ecuador, 2015.

9. A. A. Jaber, “Diseño de un huerto inteligente destined al autoconsumo”, B.S. thesis, UPC, Barcelona, España, Jul. 2017.

10. NRF24L01 Single Chip 2.4GHz Transceiver Product Specification, NORDIC Semiconductor, Trondheim, Norway, Jul. 2007, pp. 1-74.