

## MONITORING WATER USAGE BY HALL EFFECT SENSOR

S.Kamala Kannan ,P.Sasindhiran, P.Venugopal, R.Keerthi Vasana,S.Hari

Dept. of Electronics and Communication Engineering,

SNS COLLEGE OF ENGINEERING, COIMBATORE, INDIA.

kamalkannan.ap@gmail.com<sup>1</sup>, sasiece77@gmail.com<sup>2</sup>, venug1020@gmail.com<sup>3</sup>, keerthivasana081@gmail.com<sup>4</sup>  
hariyuvan@gmail.com<sup>5</sup>

### ABSTRACT

Water is an inorganic substance of essential significance for the presence of living creatures. These days the utilization of water is more use in families, businesses etc.,. For an exercises, for example, family cleaning, vehicles washing, planting. This causes water shortage. Keeping in mind the end goal to manage this issue, little thought was set up to figure the aggregate number of water's which is gathered through technique for rain water collecting. Through the stream meter sensor water amount are estimated. The deliberate amount is shown on the show. At the point when the abundance of water is utilized then the motor will get off. Keywords— *Rain water, sensors,arduino,LCD display, Relays ,Motors .*

### I INTRODUCTION

Now a days the key procedure of Domestic utilize is Reuse the water. Our reality confronting the enormous issue through the shortage of water. For home alone we utilizing roughly water loss of 72.5%for our day by day exercises. Rain water gathering (RWH) is a procedure which gathers and store the water into characteristic supplies or tanks, or the invasion of surface water into subsurface aquifers. One strategy for water collecting is housetop gathering. In roof gathering methodology, most by far of the surface tiles, metal sheets, plastics, yet not grass or palm leaf can be used to hinder the flood of water and outfit a family with fabulous drinking water and yearround limit. Diverse usages fuse water for greenery fenced in areas, creatures, and water framework, et cetera. This procedure is received by the administration to lessen the shortage of water yet we are not utilizing the procedure appropriately. The number of inhabitants on the planet progress toward becoming builds every day except the savage of water is diminishing every day. This paper plainly concentrating on diminishing the water shortage and reuse the rain water in the local use and field work in horticulture. Everyday water use and water is checking then we know the water utilization as indicated by that we can utilize the water. The sensors are utilized for estimating the waters. Estimated amount of water is shown on the LCD display.

### II. LITERATURE SURVEY

"Beza Negash Getu, Hussain A. Attia", in 2016has discovered, "Automatic Water Level Sensor and Controller System" describes that Through the analysis of water measuring through sensors in

automatic way. The LCD displays are used to display the water measuring count. The collected water are stored in a large tank or reservoir . The flow of water is being controlled and measured through the automatic sensors. The electronic system is designed for monitoring the automatic water level through the sensors and displays in the LCD seven segment displays from zero to one . Here they use the JK flip flop sequential circuits a motor driver circuit is controlled by the relay base driver. The level detector sensors are used for the signals as HIGH and LOW which is depending on the electrode probes have connected with the water liquids. Priority encoder circuit that takes the sensor input signals and provided the output signal in a encoded form. The system eliminates manual monitoring and controlling for home, agricultural or industrial users and achieves proper water management and enhances productivity from automation. "Sreekanth Narendran, Preeja Pradeep, Maneesha Vinodini Ramesh" has discovered the idea of "An Internet of Things (IoT) based Sustainable Water Management "The idea is to use the control the scarcity of water in a ground water management using the internet of things. Here they used the five section for the water management and separate the process for maintaining the water management . They used the flow meters for measuring the water flow in the various point of the network 'Edward B. Panganiban , Jennifer C. Dela Cruz" has discovered the " Rain Water Level Information with Flood Warning System using Flat Clustering Predictive Technique" which provide a main idea for the measuring of flood stress and also a monitoring the rain water fall. The measuring of rain water which will be interface with the web server

.Here they used the raspberry pi software for monitoring the flood and water system. This system which has idea that will be easily accessible by the public. The rainfall has been measured from all over the street from a existing level when range of the water increase then the signal will be send through receiver that there is a flood chance .It is a user friendly product. .

“Xin Yang, Bing Jiang, Jian Yao, Jianmin Yang, Xuan Xu, Jiuqiang Fu” has developed, “Intelligent Products Design for the Household Water Resources Conservation”. This implies that the method can reuse the water and reduce the water scarcity. The wastage of water like bathroom, kitchen etc., has been reused. The environment based household water has been reused in the proposed technology which is a global water resource protection.

### III EXISTING SYSTEM

Beza Negash Getu, Hussain A. Attia The framework volves a water level sensor (with voltage yield readings), a computerized rationale handling circuit or an incorporated circuit (IC) which forms the sensor input flags, a 7-section show unit, a JK flip tumble successive circuit, an engine drive circuit controlled by hand-off based driver. The proposed framework incorporates water level sensors which can be expected anode resistive sensors that rely upon the water's conductivity where at the coveted purposes of level discovery, it will direct power between two settled test areas or between a test and the tank divider .The water will finish the circuit and the sensor yield can be utilized as a part of various courses, for example, opening or shutting an electronic switch or killing on or a water pump. The general square chart demonstrating the distinctive parts of the framework. In the primary sensor hinder, the level locator sensors give fitting signs either HIGH or LOW depending whether the terminal tests have contact with the fluid water or not. The water level sensor signs will be handled by an extraordinarily planned advanced rationale circuit or a need encoder circuit that takes the ten sensor input flags and gives four encoded yield signals. The encoder yield will go to the seven portion show unit that demonstrates the suitable water level in decimal number. Then again, the encoder yield is additionally being a contribution to an extraordinarily composed consecutive circuit that controls the engine pump driving circuit.

### IV. PROPOSED METHOD

The Hall impact is the creation of a voltage contrast (the Hall voltage) over an electrical conveyor, transverse to an electric current in the conduit and to a connected attractive field opposite to the current. The proposed system comprises a measure the ground water level and then how much amount of ground water is used for the irrigation purpose ,in this project we used two flow meters one for the inlet and another for the outlet ,then the inlet pipe will measure how much amount of water is stored in the ground then the outlet pipe is connected to the motor via relay driven circuit, then arduino is used for the programming purpose in which it interface the two flow meters which is connected through the pipes then the flow meter pins are connected to the relay .Inlet pipe will measures the how much amount of water sent to the ground and it will display in the display and when the water is taken 5 times above the stored level the motor connected via relay driven circuit will stops the motor to run. Fig 1.1 represents the block arrangement of the hardware.

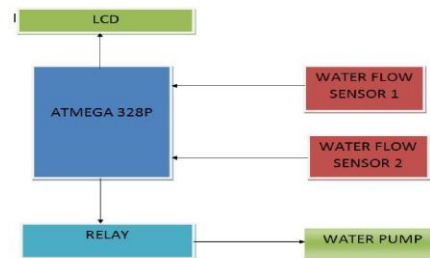


Fig: 1.1 External Block Arrangement

### V. HARDWARE DESCRIPTION

#### A. Arduino:

It is a single board kit which is used to operate, control and sense the objects in the outside world through the set of build-in microprocessors and microcontrollers. The board contains a set of analog input and output pins as well as digital input and output pins. These pins are used to interface the board with other blocks. It also contains communications interfaces, including Universal Serial Bus (USB) used to load programs from PC. The micro controllers are typically programmed using C and C++.



Fig 1.2 Arduino

**B. Flow Sensor:**

Water stream sensor comprises of a water rotor, a plastic valve body and a corridor impact sensor. At the point when water moves through the rotor, rotor rolls. Its speed changes with various rate of stream. The corridor impact sensor yields the comparing beat flag. This one is reasonable to distinguish stream in water allocator or espresso machine. We have a complete line of water stream sensors in various distances across. Look at them to locate the one that addresses your issue most. The following are the Salient features of flow sensor. It is compact, easy to install, high performance. It also has high quality hall effect sensor.



Fig 1.3 Flow Meter

**C.LCD Display:**

The LCD6 six digit LCD show card has six substantial, simple to peruse, 7-portion digits that are controlled by the LCD6 fringe in the FPGA. The LCD6 card drives the fragments of the LCD utilizing the puts of a 749595 move enlist. The clock to the move registers utilizes the 7474 quadrature clock plot from the ESPI card. Note that in the LCD6 card there are two information lines from FPGA and that one of the move registers is timed on the negative edge of the clock. Utilizing two information lines and timing on the two edges gives the LCD a chance to move registers fill in 8 clock cycles from the FPGA.

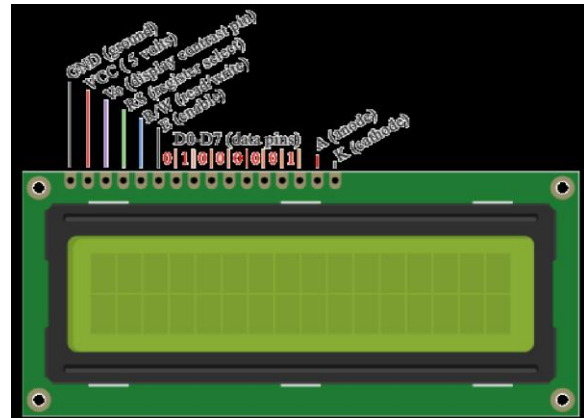


Fig 1.4 LCD Display

**D. Relay:**

In our proposed method, to control the enabling and disabling of alarm relay is used. It is a switch which can be operated electrically as well as magnetically. It is also used to perform logical operations. Protective relay, a type of relay, is used in protecting the circuits at the time of fault and overloading.

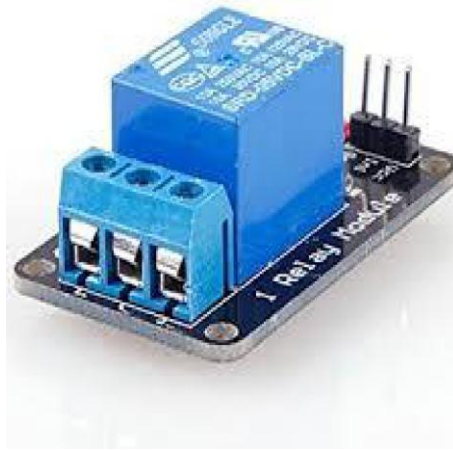


Fig 1.5 Relay

**VI CONCLUSION:**

In order to save the water source, water management is necessary. This proposed method will reduce the water scarcity and saves water for the future usage. It also leads the saving of water 5 times larger than existing methodologies. The rain water will be monitoring and displayed on the LCD display. It is achieved by switch off the motor when excess of water is taken from the ground.

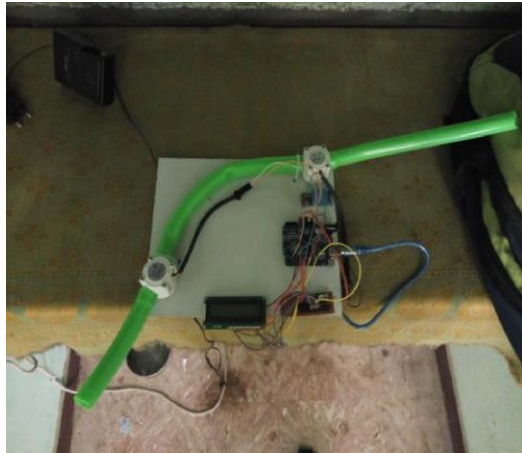


Fig 1.6 demonstration

### VII. FUTURE WORK:

In future, our plan is to develop our idea by updating the current status in the agriculture field by means of recycling the wastage water and rain water. Therefore the scarcity of water resource will be decreased and also increasing in the agriculture cultivation.

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