

Digital water meter with locking system@AQUALOCK

Mr. Kamarudin bin Kamit, Sivarueben a/l K. Raman, Nirrish A/L Segaran

Supervisor, johor

Student, johor

Student, johor

sivaruebenr@gmail.com, nirrish19@gmail.com

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Abstract.

We had an idea to build a digital water meter to make it easier to control water distribution system. This will also give the people a sense of accountability and responsibility. Other than that, this will make the time not being wasted. In conclusion, in this we will be able to introduce the digital water with locking system. Besides, we also be able to know the importance of this system and why should we force on wastage of water.

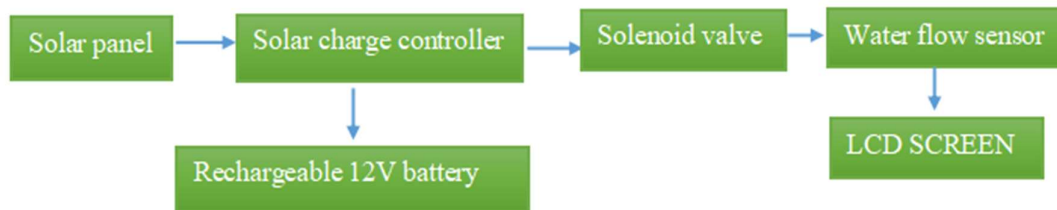
Introduction

Direct Current (DC) motor has been an important component of the application in a high range of power and speed. The advantages of DC motor is easy to control and good performance. Thus it will ensure that DC motor can be used in the future. This project focuses on the design of a control system for motor speed by using the PIC 16F877A micro controller.

Methodology

Nowadays, The standard water meter is practiced almost everywhere in the country. Although, it has been deemed useful, it also have a flaw that has been exploited by some careless consumers. To evade from settling water bill, some consumers tend to steal water supply from the main water channel. This will lead to a economic famine if not prevented, because prevention is better than cure. Digital water meter is a hardware that can lock out water

supply when the water bill is not settled. The operation of this hardware is water will channel through a water flow sensor which measures amount of water used and sends the information to a LCD display and to BLYNK application. The solar panel will charge the battery by absorbing the sunlight and change into photovoltaic and this process will only occur when there is a presence of sunlight. When in night time, the battery will power the hardware so it keeps functioning in night. Other than that, to reduce manpower, time, energy required to restraint consumer who commit this crime. The risks we assume to face are the durability of this project. This is because the hardware mostly contains electronic components. So, we worry that the component damage can affect the functionality of the project.



The electricity will generate when the solar panel absorbs the sunlight and changes it into photovoltaic. The power from the solar panels will go through the PWM solar charge controller which will slowly reducing the amount of power going into the battery as it approaches capacity. When the battery is full, PWM controllers maintain a state of “trickle”, which means they supply a tiny amount of power constantly to keep the battery topped off. It then sends the energy absorbed to solenoid valve and rechargeable 12V battery. The solenoid valve then powers the water flow sensor which measures water and sends the information to lcd screen.

Results and discussion

The results found in the testing of the project were observed and recorded. It seems that the project functions steadily. The operation of the ‘Aqualock’ is it measures the amount of water consumed through the water sensor fitted in the pipe line. The electrical water sensor records the amount of water consumed and sends the data acquired to the wifi module. The wifi module processes the information and sends the output to relay and to the device connected

to the module. Next, the relay sends the output to lcd. Meanwhile, the solar panel absorbs sunlight and transforms it into photovoltaic energy and sends it to solar charge controller(pwm). The pwm then sends the current and sends it to battery and load. The load consists of solenoid valve, water flow sensor and lcd screen.

At first, the project had encountered countless errors. When we first tested, the project did not work at all. It seemed the source code was uploaded incorrectly. Next, we found a leaking problem. The pipe connected to the water sensor had a slight leakage because of insufficient white tape used to seal the water sensor to the pipe connector. So we re-taped the tread of the water sensor. That solved the leakage problem. We also made a lot of changes to the source code as we progress. So, the lesson we learned is the more you fail, the more you learn. Lastly, we also learned basic Arduino Programming.

CONCLUSION

In conclusion, as we progress we learned to troubleshoot basic circuit and improvise when encountered a problem. We earned more experienced about hardware installation and software coding. We also learned more about Arduino coding and troubleshooting.

Acknowledgement

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