

Survey on Android device for smart fluid meter reading system in IoT and WSN environment.

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ABSTRACT

Existing fluid metering solutions by hand read, and the information difficult to digest. Moreover, billing information, which serves as feedback, lags consumption by several weeks. Smart meters address many of these challenges by enabling electronic and real-time metering, low-cost water flow meter is developed for use in household smart metering solutions. The design is based on YF-S201 Sensor, to measure the fluid, which causes a measurable unit pulse. Fluid meter sensor (YF-S201) placed in between the fluid pipe and contains a pinwheel sensor to measure how much fluid has flowed through sensor. In this an integrated magnetic Hall-Effect sensor which gives electric pulse as output with every revolution.

Keyword: - Fluid meter, Internet of Things ,Cloud, Arduino Nano .

1. INTRODUCTION

IoT can be considered as an emerging global technology in which things can be connected and controlled remotely. Information about the usage of fluid can reduce the fluid wastage and will help in fluid management.

To analyse the fluid measurement we are using android device. YF- S201 sensor, Arduino Nano, HC-05 Bluetooth, Flow meter mobile application is the main components which are going to be used in this system. Here android application is interface between human and hardware device. The app used is flow meter for detection of fluid which gives the analysis of that fluid used.

2. GOOGLE CLOUD FOR DATA SYNCHRONIZATION

Cloud platform helps to discover, understand and respond to production issues. It is possible to monitor and make changes to cloud platform resources from our iOS or Android devices. For data synchronisation we can use google cloud directory with LDAP server. In LDAP server google users, groups, contacts are synchronized to match the information.

2.1 Cloud storage provider

We can place and retain data in an off-site storage system with the help of cloud storage provider or managed service provider. We can use that per month or on demand.

Cloud storage hosts a customer's data in its own data center. It provides the networking and storage infrastructure. It allows for both individual and corporate customer to get unlimited storage with low cost. Using internet connection user can access the files.

3. WORKING

YF-S201 is a fluid flow sensor connected to Arduino Nano which processes data. Arduino Nano is used to read and process the data which is sensed by YF-S201. The data is nothing but the count of pulses which is produced by YF-S201. This data can be transferred to mobile application via Bluetooth.

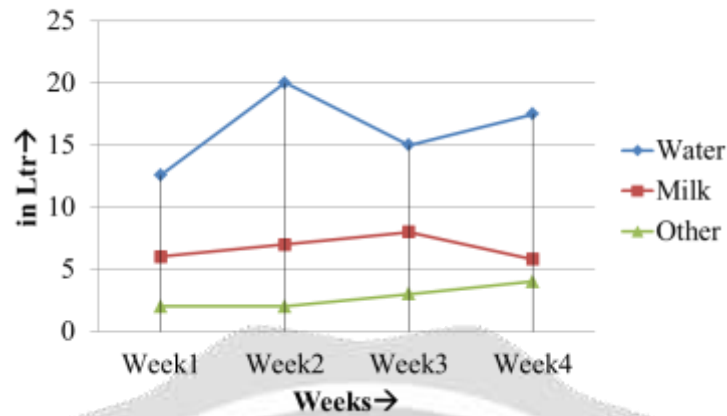


Figure 1: Fluid Flow Meter Application

Android application shows real time readings of fluid flowed through the device. Mobile application shows graphical representation of historical data as well as current readings. Pie chart and bar graph shows us statistical analysis of fluid consumption.

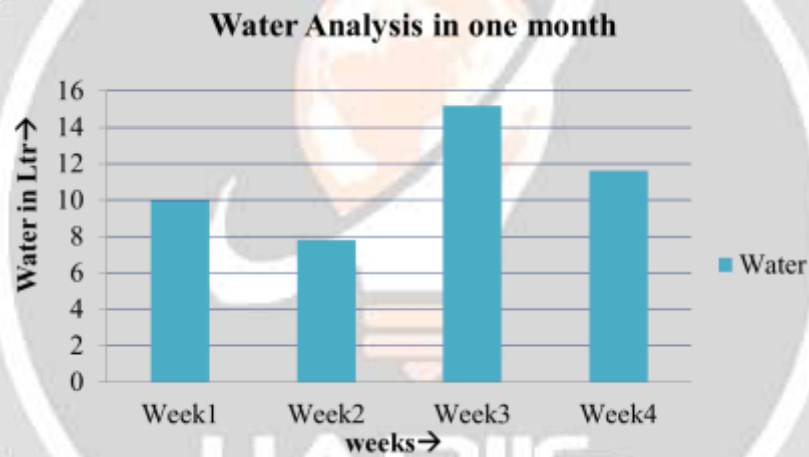
4. ANALYSIS

Fluid meter is used to analyze different fluids to have overview of how much fluid can be consumed by user. Below graphs shows us example of fluid consumption in one month by user.



Graph 1: Analysis of different fluids

Below graphs shows us example of water consumption in one month by single user.



Graph 2: Analysis of water

5. CONCLUSIONS

The IoT based fluid meter we aim to implement smart meter which will provide high data analyzing capability at lower cost. This meter will allow user to access real time as well as historical data anytime and from anywhere. The proposed system uses web services for communicating between the water meter and the IoT cloud.

6. REFERENCES

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