

Cost Effective Digital Water Billing System

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Abstract

People, mainly in developing country are not aware about the pure water problem around the world. This paper focuses on water uses and wastage in developing country. It shows an automatic water measuring and billing system. Implementing high end technology for developing country like Bangladesh is very difficult. So a very cheap and cost effective water billing system is being introduced in the paper to save water for future.

Index terms— pure water problem, automatic water measuring, Implementing high end technology.

1 Introduction

Water is an essential element for various purposes. It has a wide range of uses. But water, strictly saying usable water is being wasted by people in every moment because of poor management of related organizations mainly in developing country like Bangladesh. One of the examples is Dhaka WASA. Common people also are not aware about it. So, it is very important to find an automatic system for the management of water. In Bangladesh, there is 6.4% of water [1] but pure drinking water is far less than that. Again Arsenic contamination of the ground water including water pollution has reduced the safe water coverage [2]. Because of greenhouse effect and climate change northern part of the county is facing water problem and drought. 19 draught periods occur during 1960 to 1991 [3].

People living in City area in Bangladesh are not very aware of water problem and waste huge amount of water. Implementation of a modern billing system can reduce the wastage of water showing the bill depending on the amount of water used. In developed countries water meter is used at a wide range. But in Bangladesh, it is a new one. On the other hand, importing devices at a wide range is costly. While this device is very economical and can stop the wastage up to large extent.

2 II.

3 Project Outline

When fluid passes through a venture pipe, it creates a pressure drop. These two pressures need to be measured and pressure is directly related to flow rate [4]. i.e. $Q \propto (P_1 - P_2)$; Where, Q = flow rate and P_1, P_2 = pressure at two different cross section.

Various instruments are used in this project. Table 1 shows the list of the instruments.

4 Cost Analysis

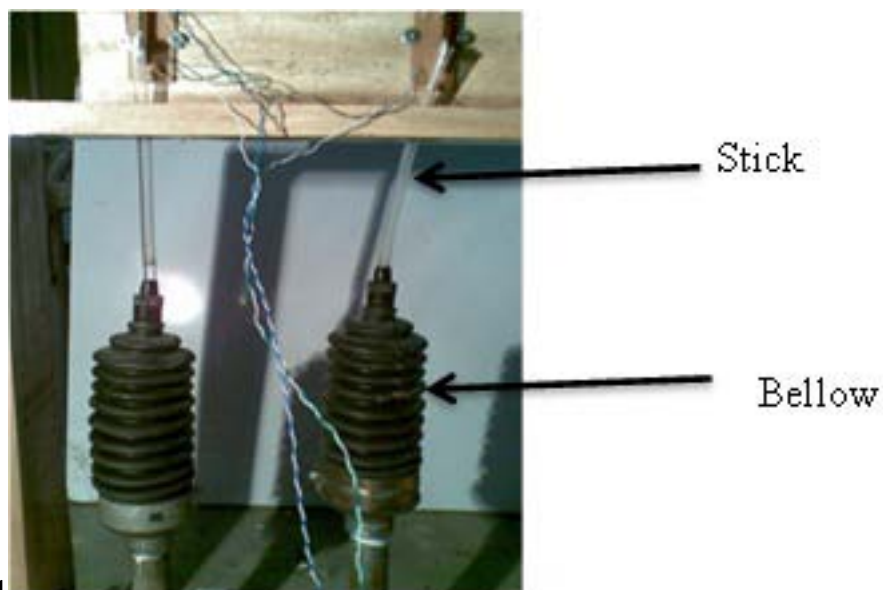
5 Conclusion

Digital Water Billing System will introduce a new era in Bangladesh. Principle target of the project is to ensure proper utilization of the limited natural resource, water. This system is very useful as it gives direct observation of the billing and amount of water used for a particular time. It may be weekly, quarterly or monthly. This can be re-adjusted according to consumer choice and need. If this product can be spread throughout the country, people will become aware about the use of water. That will control the wastage of water. ¹

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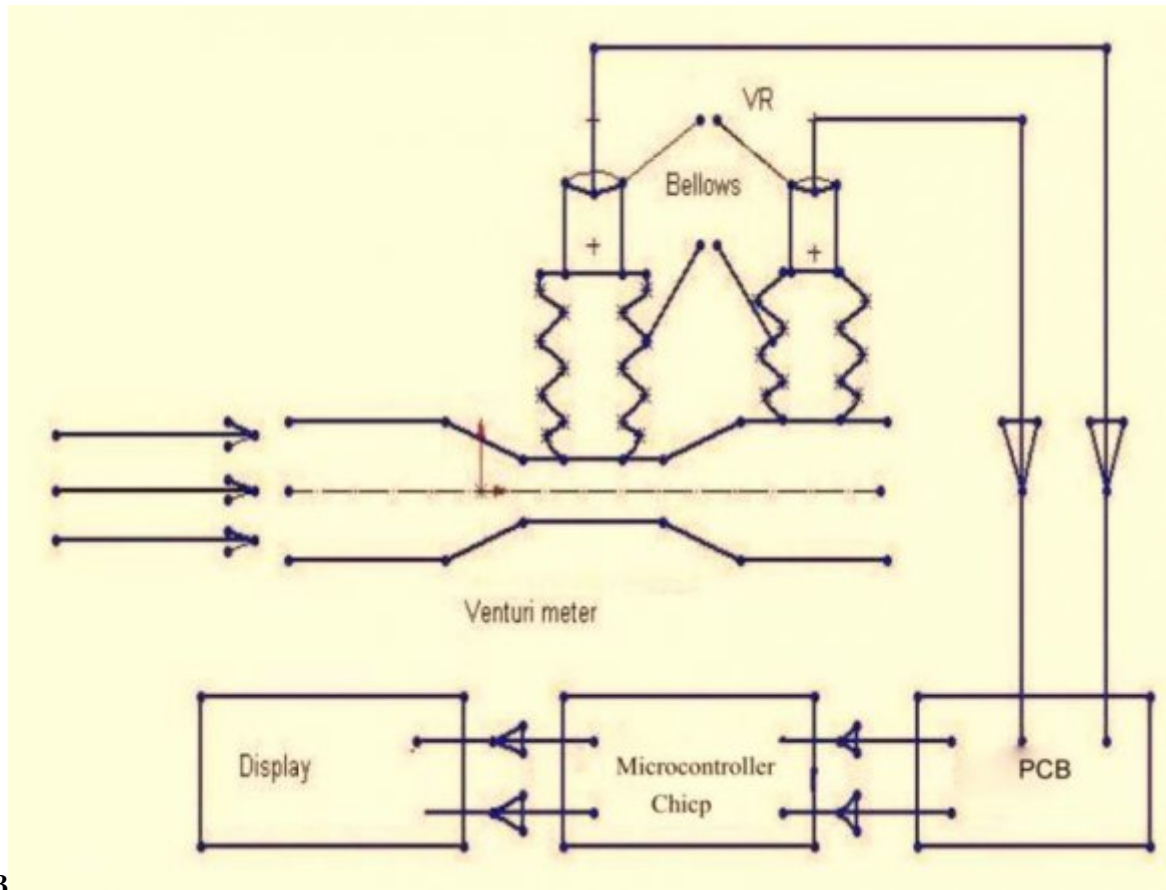


Figure 1:



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Figure 2: Figure 1 :



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Figure 3: Figure 3 :

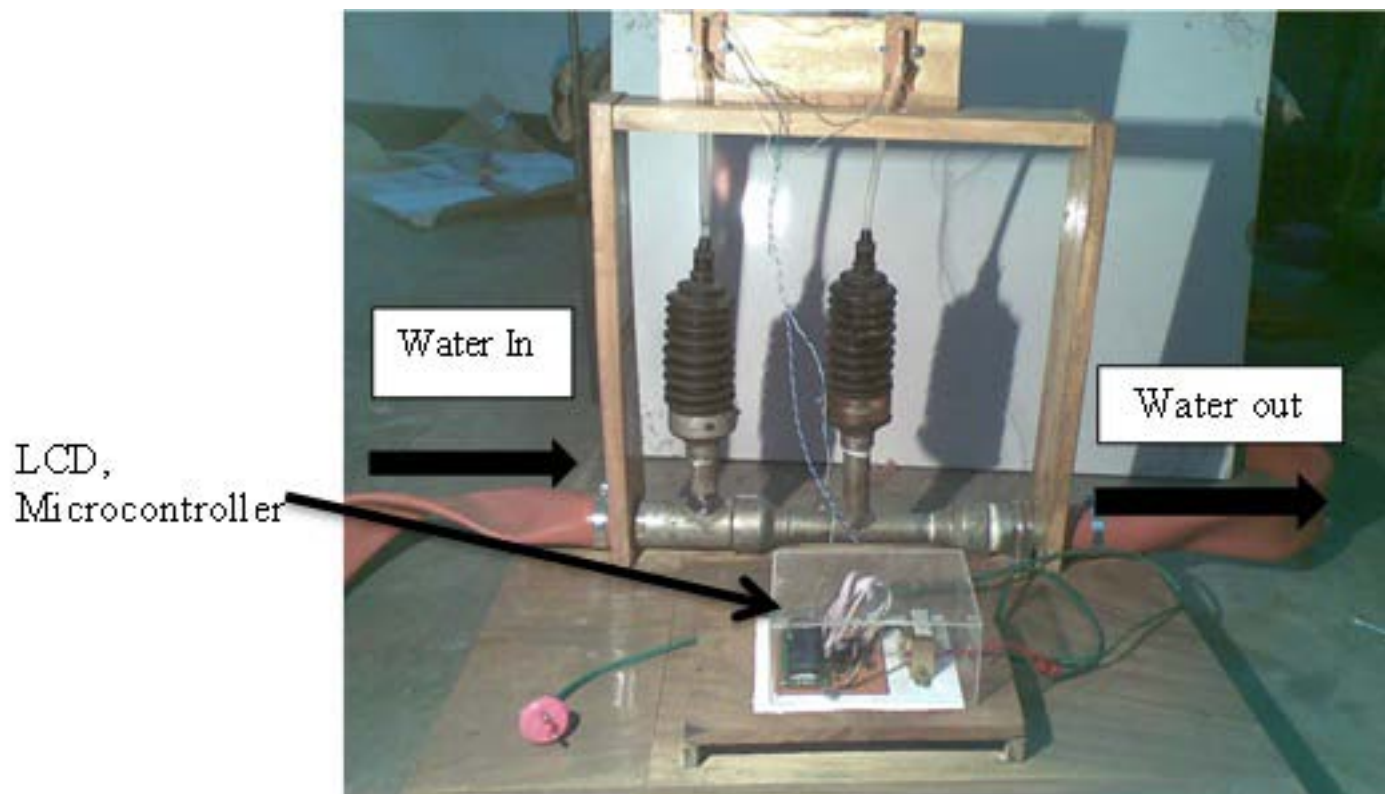


Figure 4: Figure

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	Pipe
	Reducer
	Bellows
Mechanical	Sticks
	Wood Board
	Clamp
	Screw
	Variable resistance
Electrical	IC7805
	Capacitor
	Microcontroller chip
	Diode
	Resistor
	Switch
	Transformer
	Printed circuit board
	LCD Display Board

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Figure 5: Table 1 :