# DESIGN AND DEVELOPMENT OF A WATER LEVEL MONITORING AND FORECASTING SYSTEM

A THESIS

Presented to
the Faculty of the School of Graduate Studies
Central Philippine University

In Partial Fulfillment
of the Requirements for the Degree
MASTER OF SCIENCE IN COMPUTER SCIENCE

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October 2012

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## ABSTRACT

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The study presents a proposed water shed monitoring system which will help the local government unit in Maasin, Iloilo to monitor and forecast the water level in the watershed so that enough preparations can be made to combat possible calamity damages to human, animals, and natural resources. Generally, the study aimed to provide an advisory bulletin on the status of the watershed's water level and its water volume fluctuation through the use of a designed water level sensor device. The information generated is processed through a developed front-end application. Specifically, the study will address and provide a solution to the problems being faced by the personnel monitoring the watershed, and the community who benefits from the watershed.

This study aimed to design and implement a water level monitoring and forecasting system to monitor the watershed's water level and water volume, generate results, and transmit results through Simple Message System to the communities so they can take necessary precautionary measures. The system development involved the following processes: hardware development, circuit generation, database construction, demography design, and programming analysis. The system's component is divided into four (4) parts, namely: the water level sensor device, the micro-controller unit (MCU), the circuitry board, and the application software. The study focused on the Maasin protected watershed and the proposed system is intended to serve as a water level monitoring and forecasting system.

System implementation results generated showed the gradual changes in the water shed's water level and water volume. Forecasting using an algorithm, least squares method determined the predicted possibilities of the watershed within the preceding days.

The study revealed that the monitoring system implemented is an effective tool in obtaining fast and accurate results in terms of monitoring the water level and water volume inside the watershed. In addition, the proposed monitoring system will not replace the personnel currently assigned to monitor the water level in the watershed, rather it will be used only as a monitoring and forecasting tool.