

COMPUTERISED WATER DEPTH MEASUREMENT USING PIEZORESISTIVITY PRESSURE TRANSDUCER

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ABSTRACT.

The measurement of liquid level is a fundamental one used in the automatic control of continuous processes. It is frequently used in conjunction with other basic measurements of temperature, pressure and flow for the control of processes in petroleum industries and is of prime importance in water works and a number of other applications.

This project covers one area of the existing SCADA which is called 'Measuring System of Water Level Using Piezoresistivity Pressure Transducer. The proposed system involves the data acquisition and conversion system interface between the real world of physical parameter which is analog and the artificial world of digital computation and control. This type of transducer is used because it is widely used in JBAS. In this work the objective is to develop a system which can be interfaced to the existing SCADA system available in JBAS.

The analog signal produced by the transducer comprise a voltage level whose amplitude, frequency, or phase relationship with some reference signal containing data information. This information is fed to the signal conditioner that have the task of modifying the signal's amplitude to more desirable signal levels. Noise filters are used to eliminate any electrical noise that might be present

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1.0 Introduction.

Jabatan Bekalan Air Selangor (JBAS) is the Authority responsible for water supply throughout the State of Selangor and Wilayah Persekutuan. The authority supplies approximately 1,350 million litres of water daily to an estimated population of 2.5 million people [5] and industrial users. The existing plant comprises :

- o 8000 km of water transmission pipelines distributed over 8000 sq. km.
- o 4 major dams
- o 35 treatment plants
- o 200 reservoirs
- o 150 pumphouses.

The increasing demand for water consumption has made it vital that the collection and distribution of water is monitored and controlled effectively.

JBAS has implemented a Supervisory Control And Data Acquisition (SCADA) system in 1985. The acquired data provides up to date information about conditions, working and characteristics of the water supply network. These data are required for effective control and management of the entire regional operations.