

REMOTE MONITORING OF BATTERY STATUS FOR UNDERWATER VEHICLE IN DEEP SEA

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Abstract

A Battery will never be stronger than the weakest cell. Therefore, a Single Cell Battery Monitoring System (BMS) for underwater vehicles in deep sea is required by the operator to remotely monitor the battery status such as voltage, temperature & electrolyte level. The system has to be compact and head mounted on the battery for measuring the battery status and transmitting it to the remote monitoring station. In the proposed system four basic units are considered between the battery and the monitoring station: Sensory unit, Signal conditioning circuitry, Microcontroller and Communication Interface. The battery parameters are measured by an integrated sensory unit connected to each cell in the battery. The measured signals are transferred to the microcontroller through a signal conditioning circuitry. The microcontroller processes the data and transmits it to the monitoring station through Fiber optic cable. The Sensors used for the design of Battery monitoring system can be IP67 certified so that it can withstand the harsh environmental conditions of the underwater vehicle. Data is presented on the monitor in the form of digital values and also as graph using LabVIEW software. BMS can also provide warning to the operator once the indicated limit value has reached.

Keywords: Single Cell Battery monitoring system (BMS), Sensors, Signal conditioning circuitry, Microcontroller, Fiber optic communication and LabVIEW.

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