

DESIGN AND IMPLEMENTATION OF EMBEDDED WEB SERVER USING RASPBERRY PI FOR MONITORING ENVIRONMENT OF SOLAR SYSTEM

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ABSTRACT:- This paper presents an intelligent monitoring system of solar system environment. Remote monitoring of temperature sensor, humidity sensor and light intensity sensor has been implemented using an embedded web server. Raspberry Pi is used as an embedded board which is designed based on the arm 11 microcontroller architecture and Linux as a real time operating system. Embedded Linux board makes the communication with all distributed sensor nodes placed at the solar system through ZigBee protocol and itself act as a coordinated node in the wireless sensor network. The goal of coordinator node is to collect the parameters like temperature, humidity and light intensity wirelessly. Each sensor node consists of temperature sensor, humidity sensor and light intensity sensor and one ZigBee RF antenna device for communication with the coordinator node. Raspberry Pi stores collected data in the database and analyzes the stored data. The board has an Ethernet interface and runs the simple data web server. Hence coordinator collects the data over ZigBee wireless communication protocol and allow user to monitor the data from a web browser. This paper explicates salient features of proposed design and also analyzes the performance of developed system. User will build the solar system ON or OFF remotely.

Keywords— Raspberry Pi (Rpi); Embedded Web Server; embedded board.

