

MICROCONTROLLER BASED DATA ACQUISITION SYSTEM FOR AGRICULTURE PLANTATION PURPOSE

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ABSTRACT

The aim of this project is to build a simple, easily installable, microcontroller based data acquisition system to acquire and monitor the temperature, moisture of the atmosphere and the soil. The monitoring is done at the base station (computer screen) once the sensors transmit the readings wirelessly.

The system consists of a power failure alarm circuit, which will indicate if there is a power supply breakdown and if so, the buzzer will ring for a short period of time. The PIC16F887 manufactured by microchip is used because of its low power consumption and cost effective chip. It is programmed to read the analog readings from the four sensors; convert the readings to meaningful data and display the readings in real time. The programming was successfully done using a few software programs such as mikroC Pro for PIC, PICKIT and PIC simulator. There are four sensors used for this system. There are two temperature LM35 sensors, one measuring the atmosphere temperature and the other the soil temperature measured in degrees centigrade (°C). The atmosphere humidity sensor HSM-20G measures the percentage relative humidity which displays in %RH. The fourth sensor, which is the soil moisture sensor circuit detects whether the soil is dry, slightly watery, average, above average or wet.

The system has been successfully as the objectives were achieved. This design is simple and flexible as the programming can be changed at anytime and modified as the user's requirements. These features make this project to be inexpensive, portable and cheap to run for agriculture applications, especially for small scale farmers.