

DESIGN AND DEVELOPMENT OF A MICROCONTROLLER – BASED GARBAGE
COMPOSTING MACHINE

Undergraduate Design Project
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ABSTRACT

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The Microcontroller-Based Garbage Composting Machine was developed and constructed at Limbon, Indang, Cavite. It was evaluated at the back of the Old Engineering Building at Cavite State University on April 2004.

The study focused on the development of garbage composting machine with automatic saving and erasing of the data gathered by the temperature and moisture sensors, and automatic control and operation of the system using Assembly language. The microcontroller activated the RTC and trigger the temperature and moisture sensors in each bin to get initial readings. The gathered data are displayed at the LCD. After 5 minutes the relay activated the motor and drive the blower that supplied the air inside the bins. After aeration, the temperature and moisture content of the compost in each bin were again recorded. Then the whole system stopped for 4 hours. This process was continuously done until the desired temperature, which was 25°C was reached.

The system included the microcontroller circuit, power supply circuit, and the garbage composting machine.

The microcontroller circuit was primary composed of Z86E30, DS12887, ADC0804, 74HC373, 75HC245, CD4051, and the LCD display. The design was composed of relays, temperature sensors, moisture sensors and AC motor.

The total cost of the machine was P34,845.50.

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