

Intelligent Mushroom farm

A live project to stabilize live conditions in a mushroom farm

A project comprising of sensors, relays and microcontroller used to stabilize the live conditions in the atmosphere (like temperature, humidity and Co2 level) and stabilize their levels by automating fan by the use of relays according to the data accumulated by the controller.

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Settings

The system has provision to set 2 quantities.

1. Co2 level
2. Fan ON time

CO2 level

The Co2 level in the farm basically vary from 450ppm to 3000ppm. In order to maintain a good harvest of mushrooms, it is feasible to stabilize the CO2 level in the range of 650-800ppm.

To do that, the user can input the value of maximum CO2 level (trigger value of CO2) that is feasible for the harvest through the keypad provided on the system. When the value is given, whenever the real CO2 level go beyond the input value, the controller turn-on the relay and thus turn-on the fan.

The values to input are given in a special form in which, it is multiplied with 10 to get a range of hundreds i.e., if we input 50, the trigger value of CO2 will be stored as 500. It can take value up to 255.

Input	Trigger value (input x 10)
50	500
65	650

How to set-up the system

To set-up the system, first we have to input the basic trigger values such as 'Trigger CO2' and 'Fan ON-time'.

For this, first PRESS the 'S' button on the 'Keypad' until the 'dialogue' appears to enter the trigger value of CO2. Then, the LCD display will provide the space to input the CO2 trigger value. To store the input value and switch back to the sensor data monitoring, PRESS on 'OK'. To cancel the value typed/ to enter a different value, PRESS 'C'.

To set 'Fan ON-time', PRESS on button 'T' until the dialogue appears to type the on-time value. Then input the value and PRESS 'OK'.

Fan-ON time

The fan-on time is basically the value which determine the 'ON time' of the fan. The user can input the value (like 10, 40, 100, 150...etc.) to set as the 'fan-on time' value. Every value has a specific time and it can be used to set how much time the fan continue to run once it is turned ON.

To do that, the user can input the value of 'ON-time' that is the time needed by the fan to pump-out the inside CO2 from the farm and pump-in fresh air from outside. It can be done through the keypad provided on the system. When the value is given, whenever the real CO2 level go beyond the input value, the controller turn-on the relay and thus turn-on the fan until corresponding ON-time finishes.

Input	ON-Time
10	30sec
100	4.30 min
200	9.30 min