

## Performance Evaluation of Microcontroller-Based Fuzzy Controller for Fruit Drying System

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**Abstract :** Fruits are a seasonal crop and get spoiled quickly. They are dried to be preserved for a long period. The natural drying process requires more time. The investment on space requirement and infrastructure is large, and cannot be afforded by a middle class farmer. Therefore there is a need for a comparatively small unit with reduced drying times, which can be afforded by a middle class farmer. A controlled environment suitable for fruit drying is developed within a closed chamber and is a three step process. Firstly, the infrared light is used internally to preheated the fruit to speedily remove the water content inside the fruit for fast drying. Secondly, hot air of a specified temperature is blown inside the chamber to maintain the humidity below a specified level and exhaust the humid air of the chamber. Thirdly the microcontroller idles disconnecting the power to the chamber after the weight of the fruits is reduced to a known value of its original weight. This activates a buzzer for duration of ten seconds to indicate the end of the drying process. The results obtained indicate that the system is significantly reducing the drying time without affecting the quality of the fruits compared with the existing dryers.

**Keywords :** fruit, fuzzy controller, microcontroller, temperature, weight and humidity

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