**Cost Effective Iot based Autonomous Mushroom Farming**

**Abstract:**

Agriculture sectors in Bangladesh plays an Important role in overall economic development. This agriculture sector contributes 14.74 percent of the country’s GDP. More than 87 percent people of rural households rely on agriculture.

One of growing agriculture sector in Bangladesh is Mushroom cultivation. During 2018-2019 Bangladesh has produced 40000 MT mushrooms. Oyster, Milky, Straw and Shiitake mushrooms are most preferable.

Internet of Things (IoT) In modern agriculture connects the farmer to their farm using technology. They can easily monitor their farm in real-time from anywhere through internet. Mushroom cultivation is one of the profitable business co-responding with its demand. But this is not always easy to look after mushrooms specially when the weather is warm. Because temperature and humidity are the most important facts of farming mushrooms. As mushrooms grow inside a room with no light it is must for the farmer to look after the room temperature and humidity. Our tradition way to take care of temperature and humidity is using air-condition and water spray. But sometime it becomes too difficult for a farmer to make the room weather perfect. As they always have to monitor the temperature and humidity and most of them had to spray the water by themselves after every 2 hours (during summer). For button mushroom it requires optimum temperature ranging from 22 to 25 degree Celsius and humidity from 70% to 90%. And low light intensity.

Technology can make this work easier for people using some sensors and microcontroller to look after the room weather. BMI160 sensor is one of most useful sensors that can at the same time collect different important data by sensing the weather. It can sense both the temperature and humidity. Using these data ESP32 can perform some of action like controlling Air-Condition device and spray machine automatically. And as ESP32 had built-in wifi and can be used as a server the user can monitor the condition and actions of farming from remote place. They can also perform some of action manually. This mini-computer ESP32 with some sensors can monitor the farm on real time and at the same time can do some action without any help of human. Thus, it can minimize human efforts and make the production easier, that could be a great beneficial to Bangladeshi farmers.

**Keywords:** IoT; sensors; monitoring station; ESP32, end devices.