A real-time web-based monitoring system for Stingless bee farming

ABSTRACT

The low yields in stingless honeybee production have impacted the daily earnings of small size farmers. The IoTbased monitoring system is presented to improve the earnings of stingless bee farmers by helps farmers to gain a better understanding of their farm and boost honey production. The system uses an Arduino Uno ATmega328P and DHT22 sensor to monitor the temperature and humidity inside the hive continuously and transmit the data wirelessly to a server for monitoring and analysis. Furthermore, 30 days of practical monitoring indicates that the system can operate without human intervention and was successfully observed the living condition inside the stingless beehive. Data is collected every 30 minutes for 30 days by the sensor and stored in the cloud. The temperature inside the hive has to be maintain not exceeding 35◦C and the humidity level is proposed to be not exceeding 78% to achieve optimal living condition for stingless beehives. The system can be extended with multiple sensors to allow farmers make informed decisions on the condition and activity within the beehive.