This article proposes a sensor network framework built using Internet of Things (IoT) and Open Source tools to automate farm fields monitoring in order to have the farm communicate real time with the necessary stakeholders. The study reviewed a couple of Internet of Things technology in Agriculture and used Open source software and hardware technologies to build-up a prototype that is cheaper and easy to deploy compared to existing proprietary systems. The designed system uses Raspberry Pi model 3 that serves as base station for the sensor network and connects with an Arduino Uno serving as an intermediary between various sensors and the Raspberry Pi. Among the sensors integrated in the system are DHT11 Soil Sensor, Humidity and Temperature Sensor, Passive Infra-Red (PIR) Sensor and Raspberry Pi Camera Module. The study deployed the prototype and tested it over Open IoT API platforms like KAA and OpenIOT for automation, monitoring and data collection.

Index Terms
Improving Agricultural Production using Internet of Things (IoT) and Open Source Technologies

Keywords

Internet of Things, IoT, Raspberry Pi, Arduino, Sensors, iFarm, Open Source, Agriculture.