

## **Wireless sensor network (WSN) applications in plantation canopy areas: a review**

### **ABSTRACT**

Recently, the developments in sensor technologies, such as wireless communication, micro electro mechanical systems (MEMS) and embedded systems have contributed significantly to wireless sensor network (WSN). The agriculture industry is applying WSN in their systems for surveillance and monitoring the environment. For plantation applications, a WSN is used for control and protection and for providing a real-time system. These applications include, for instance, to detect the presence of disease, temperature and moisture of the soil. The quality and coverage of a wireless link in a plantation area needs to be understood due to the effect of vegetation such as propagation loss resulting from the ground and canopy reflection. In this paper, the development of wireless sensor networks in canopy areas is reviewed. The problem of propagation link in canopy areas is identified. The structure of WSN is discussed with suggestions to create a reliable communication link. From the studies reviewed, the information to design a wireless sensor network in canopy areas for application in plantations is provided.

**Keyword:** WSN structure; Propagation link; Attenuation; Frequency; Transceiver