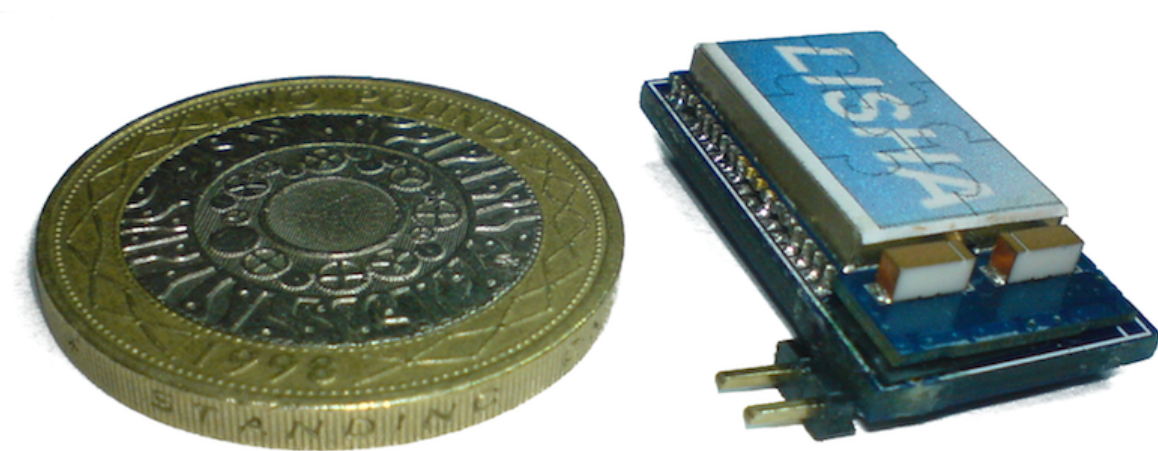


Project Description

In a wireless sensor network, several sensor nodes obtain local data and communicate among themselves in order to create a global vision of an object of study. The idea of a self-managed network of low-power, autonomous devices, that collects data from an environment and propagates information through a wireless link brought about several new challenges and requirements in application run-time and hardware support. System requirements for sensor networks include basic operating system functionality, power management, field reprogramming mechanisms, sensing hardware abstraction, and a configurable communication stack.

In this context, the **EPOS-Mote** project aims at developing an open-source tiny mote for wireless sensor network applications. The first phase of the project was based on the [MeshBeans2 ZigBit platform](#) and focus on agriculture of precision, where the main requirements for applications in this area, in a general way, are:

- **Low Power Consumption:** the lower is the power consumption, the more will be the mote's life time. Very often, collecting such sensors for in-lab battery change is unpractical, due to huge amount of motes or to hard environment conditions. It is an essential feature to consume low energy.
- **Medium-Long Radio Range:** in an agriculture of precision application is needed to monitor a large area of the environment. The radio in this case should have a good range.
- **Environment Monitoring Capabilities:** monitoring the environment changes is crucial in the agriculture field. In this sense, the platform should support several different sensors (e.g. humidity, temperature, etc) to cover the application's needs.



EPOS-Mote

Key Features

- **Hardware** (Hardware Details)
 - ATmega1281 microcontroller
 - Integrated Sensors (humidity and temperature)
 - 802.15.4 radio compliant
 - Tiny size
- **Software** (Software Details)
 - [EPOS Operating System](#) support
 - Configurable MAC protocol (C-MAC)
 - Sensors abstractions

Architecture Overview