SH: Wireless Smart Multi-sensor Devices

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Abstract

◆ Miniature Wireless Sensor Modules to be used in a Clean Room.
◆ Monitor environment & detect events to cut Energy consumption.

Introduction

- As small as 3*3*1cm module has 3 sensors, RF module, CPU, & Battery in it.
- Monitors Temperature, Humidity, Illumination, Pressure, Air-flow, Acceleration, and more.
- 50 to 100 modules can operate in a system.
- To operate 660hours with 10min. interval.

Fig. 2. Sensor Module

Methods

- Adopt small sized & low power components.
- Embed MEMS and ME sensors, including those developed in BEANS projects.
- Unique wireless communication technique will allow periodic monitoring & event detection in the same system.
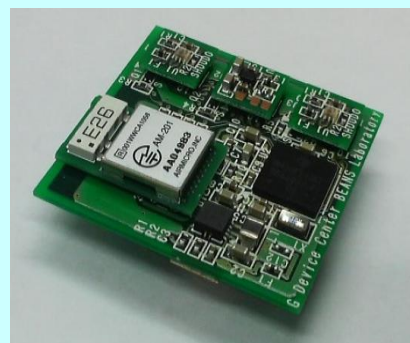

Fig. 3. PCB

Results

Example of server display

Fig. 1. Monitoring Screen

Summary

① Verified the basic architecture. Standardization awaited.
② More sensors are to come: Particle, Differential pressure, etc..
③ Further power reduction expected by new CPU & sensors.

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