

Open Thesis / Project

Building a Low-Power Wireless “Smart Office Labelling System”

Thesis Type

Bachelor Thesis / Master Project

Motivation

E-Ink displays have a few unique benefits, such as low static power usage and high-contrast images. These features make them suitable to build for various applications, such as e-book readers and status displays that do not require frequent updates.

A possible application of E-Ink displays are *smart office labels*, which can be placed in front of an office door to signal the availability of the person sitting inside (e.g., “Busy – Do not disturb”, “Available – Please walk in”, “Away – Out for lunch”), similar to the concept picture below. Our goal is to build a low-cost system that can be used to control wirelessly several labels at once (e.g., using Bluetooth Low Energy radios) and that is easy-to-use (e.g., that can be controlled using a smartphone).



Goals and Tasks

Within this context, the student can explore several directions and perform different tasks, such as:

- Get familiar on how to use an E-Ink display, and on how to control several of them wirelessly;
- Develop a prototype allowing to control several displays in a quick and user-friendly manner;
- Ensure the wireless communication to the E-Ink displays is reliable and efficient;
- Maximize the energy-efficiency and sustainability of your prototype in order to minimize the need for battery replacement.

Target Group

- Students of ICE/Telematics;
- Students of Computer Science;
- Students of Electrical Engineering.

Required Prior Knowledge

- Experience with the programming of micro-controllers and embedded platforms;
- Good C programming skills.

Contact Person

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