

# **A Portable Interactive Embedded System to Determine Student Status at the University**

**Austin Kane, Nick Polega, Benjamin Strandskov and Kumar Yelamarthi**  
Central Michigan University  
Mt Pleasant, MI 48859

## **Abstract**

Embedded systems technology has been progressing rapidly over the past few years allowing the design and implementation of a diverse range of portable systems. Alongside, resources available to help the undergraduate student design an embedded system have increased proportionately. Building on both these advantages, several student organizations in a university started offering embedded systems based hands-on design experiences for undergraduate students outside their classroom. One such project offered through the IEEE student group at Central Michigan University is the presented portable interactive embedded system that can guess the student status of major, residence hall etc.

The presented system is classified into three modules. The primary input module comprises of four push buttons that can input a user's feedback response for questions asked. The second module is a single board computer such as a Raspberry Pi that serves as the brain of the system. It would be programmed with a bank of questions, their respective relations, and responses to provide accordingly. The third module is a feedback display device, such as a simple LCD screen.

Through working on this project outside a traditional classroom, with minimal guidance, undergraduate students were able to gain first-hand design experience in embedded systems, while at the same time improve their communication and presentation skills.