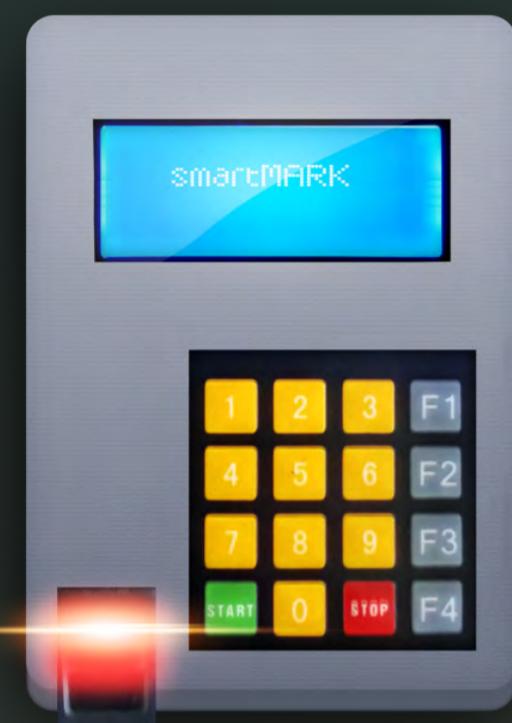


SmartMARK

PORTABLE BIOMETRIC FINGERPRINT ATTENDANCE DEVICE

L. Wijewardana, M. Premaratne, B. Wijegunawardana, T. Munasinghe



smart MARK



Overview

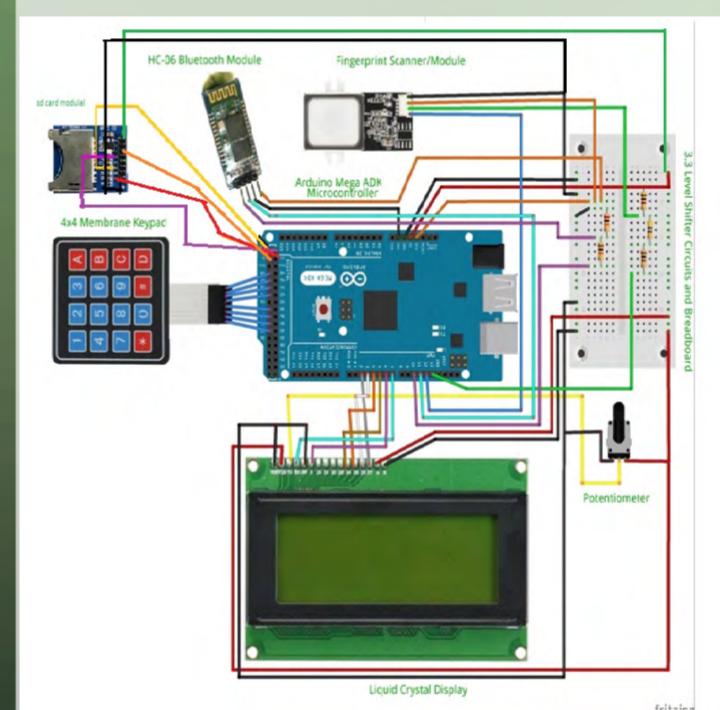
- ❑ Attendance marking in institutions happen manually.
- ❑ As we see, it wastes many productive hours because of huge paper work and also it is less accurate due to cheating students who sign for others.
- ❑ Some of the electronic devices in market have security issues, not wireless, not portable, not analyzing data after taking the attendance, etc.
- ❑ smartMARK addresses all these problems.
- ❑ Our future plan is to put this into the market by enhancing security issues further and to fully automate the attendance marking.

There are biometric fingerprint attendance marking systems. But they are.....

- ❑ less secure
- ❑ not portable always, most are stationary.
- ❑ not analysing data after taking the attendance.
- ❑ not easy to use.



System Model



Implementation

Hardware:

- Arduino Mega: number of I/O Devices (Pins) and memory sizes matters
- 4 x 4 keypad: enable customer to deal with device
- Bluetooth Module: Transfer data wireless to Attendance Management System (Software)
- Fingerprint device: dealing with user's fingerprints
- Liquid Crystal Display: enables customer to interact with device
- SD card/Module: saving data (fingerprint data, Encrypted users data, Metadata)

Software :

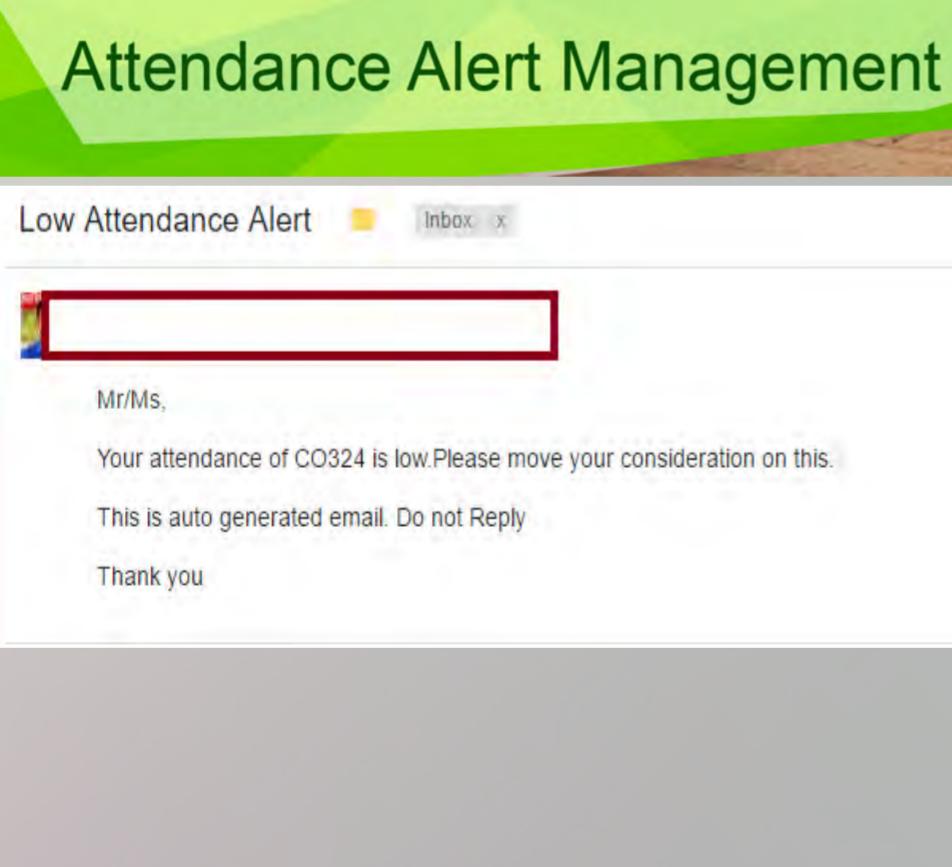
- Get data from the fingerprint sensor and store in a database
- When students have low attendance, it auto generates emails to students, course coordinators as alerts.

Technologies:

C#, mySQL, Arduino libraries, adafruit for fingerprint sensor

Features

- ❑ Auto-generate emails as alerts when students have low attendance.



Conclusion & Future Works

- ❑ We have successfully implemented all the solutions for the problems that led to this device's introduction.
- ❑ Our future plan is to address all kinds of security issues, and giving 100 % accuracy when taking attendance (ex: in case of not identifying the finger already enrolled user), and to fully automate the attendance marking.



Second Annual
Embedded System Projects Expo 2016

presented by Third Year Students
Department of Computer Engineering, University of Peradeniya