

**ECE 4180 Final Design Project Proposal**  
TA Approval required by Oct 30 – One Form per Team

Approved by GTA: \_\_\_\_\_

Team Members (from 2 to 4) List Sections and Names:

\_\_\_\_\_ Rahman Ajibade \_\_\_\_\_ Section \_\_\_A\_\_\_

\_\_\_\_\_ Mia Abrams \_\_\_\_\_ Section \_\_\_A\_\_\_

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Brief Description of Design Project:

Home Entry System (Alarm system)

Parts Used:

Touchpad/keypad

Bluetooth module

Speaker

Mbed Microcontroller

LCD screen

Status LEDs

Servo Motor

The project models a home entry alarm system. It features a keypad where a numbered digit passcode needs to be entered to unlock the mechanical door system. The door lock is connected to a servo motor that unlocks/shifts open a sliding lock upon correct code input and after a few seconds it locks the door. There is a maximum number of tries that can be entered at a given time and if all tries are incorrect, an alarm is sounded until the system can be reset. An LCD display can show a current passcode entered as well as the number of tries left to unlock the door. When the door is opened, the number of tries is reset until it is relocked again. Another feature that could be incorporated is remote unlock of the system via Bluetooth/WIFI connection to the system. Through a Bluetooth app, the passcode could be sent and the same scenarios with regards to the keypad also apply providing the same functionality as maybe an added security feature of only remote unlock feature rather than using the provided keypad. Door status LEDs are also incorporated to for the durations it the door is locked or unlocked. Presumably, these all feature the design of some security entry systems.

List any closely related projects (URLs) and describe how your project will be different or improved.

If you need any parts or software not available in the lab or in your parts kit, what is your plan to obtain the parts quickly (within 10 days)? – With the current virus issues, I would recommend using only what is already available in the lab this term, since ordering and shipping may be disrupted.

Only the door lock might need to be obtained externally, for now. Through online retailers or a hardware department store.