Embedded Challenge Spring 2020
Term Project
“Embedded Sentry”

Objective:

- Use the data collected from a single accelerometer and/or magnetometer to record a hand movement sequence as a means to generally “unlock” a resource.
- Recorded sequence must be saved on the microcontroller, using a “Record Key” feature.
- User then must replicate the key sequence within sufficient tolerances to unlock the resource.
- A successful unlock must be indicated by a visual indication, such as an LED or similar indicator.

Restrictions:

- This is an individual project to be done independently by each student
- Only one microcontroller and one accelerometer/MPU may be used. The may be connected with any length cabling.
- Any programming environment may be used (Atmel Studio, Arduino, etc.)
- You will be allowed to use drivers/HAL functions available through the IDE
- The accelerometer/MPU must be held in a closed fist of either hand while performing the mechanical sequence
- An “enter key” and ”record” functionality must be developed to so the user knows when to start the sequence of unlocking and recording respectively.

Grading Criteria:

- Ability to successfully achieve the objectives (40%)
- Repeatability and robustness of unlock sequence (via video demo) (20%)
- Ease of use (10%)
- Creativity (10%)
- Well written code (10%)
- Complexity (10%)