10/9/2020 - Practicum Project Brainstorming

- **Idea - fingerprint locker , chosen project**
- A locker that is protected which can be used to store various items or valuables and unlocked through the use of a fingerprint scanner. A display will be shown that tells the user to place their finger on a scanner which will detect whether the fingerprint is that of the owner's that will then either open the case or display an error.
    - Sensor - fingerprint sensor
    - Actuator - led display
    - Controller - ATMega32U4, Store fingerprint information and determines whether to unlock the case upon receiving input

- Idea - auto catapult
- The auto catapult will feature a motor to pull the launcher for firing and a magazine that holds ammo on standby for the catapult to launch. In the mag, there is a trigger/sensor that senses that there's ammo and a motor will load the ammo on the launcher. Optional functionality is remote movement and a digital trigger.
    - Magazine for catapult
    - Controller - ATMega32U4, Checks if launcher fired, if so reset position. Check if there's ammo, if so load on the launcher.
    - Sensor - sensing ammo in mag -
    - Actuator - motor load ammo on launcher
    - Optional. Add a firing mechanism. More motors for finer aiming and movement

- Idea - digital thermometer
- The digital body temperature detector detects the body temperature of the human body through an infrared temperature sensor (the body temperature can be detected without contact), and displays the detected body temperature on the LED display.
    - sensor : temperature sensor （infrared）
    - Controller：ATMega32U4: read the data from the sensor and display the result on the LED display.
    - actuator : led display