mastuff

# Equipment list.

* Drawer - [Link](https://nocnoc.com/p/Night-Tables/JYSK-%E0%B9%82%E0%B8%95%E0%B9%8A%E0%B8%B0%E0%B8%82%E0%B9%89%E0%B8%B2%E0%B8%87%E0%B9%80%E0%B8%95%E0%B8%B5%E0%B8%A2%E0%B8%87-1-%E0%B8%A5%E0%B8%B4%E0%B9%89%E0%B8%99%E0%B8%8A%E0%B8%B1%E0%B8%81-B/10163904?area=search-pl&pos=137) (The one with hinges)
* ESP32
* Fixed Resistors (1K, 10K, 220) (Just in case we needed one)
* OLED (Organic Light Emitting Diode) Display\* (Could change to LCD if we wanted but consumes more power)
* Servo Motors.
* 3D Print Linear actuator (Have a cad designed already) - [Link](https://www.youtube.com/watch?v=2vAoOYF3m8U&list=PL-bkuPIcS-fKHXoGfyzjpMK7sOZhf0O7m&index=2&t=6s)
* Active Buzzer.
* Breadboards (With different size)
* MPU6050 Accelerometer.
* SIM card module
* Keypad module
* Fingerprint sensor
* Power bank.

Guidelines

* Black Text – Confirmed features with **tutorials and methods.**
* Red text – Secondary Features (The ones without a direct tutorial, not recommended by the instructors etc.)
* Green text – Features that is possible (sometimes in theory) but not necessary, optional, or no direct tutorials supporting them.

Notes:

* The feature in the black text is the priority and a must have.
* The text typed in other colors other than black will be implemented if we have time.
* The green text features will be implemented before the red ones since it has more tutorials and methods that is easier to implement and less complex.
* Some features proposed are modified to be easier to implement.
* The features written in black and green will be presented on the presentation (on a different sections).

Tues (After the lab and Prathan) , Wed (Meet after lunch around 1 pm ), Sun (Meet after lunch around 1 pm).

# Locking Mechanism

* Locked by using a linear actuator (3D printed).
  + - Drilling holes on the sealing of the drawer and extend the linear actuator to lock/unlock the drawer.
    - The motor uses a servo motor. (So, we can control the how much does it spins with precision.)
* Fingerprint scanner and 6-digit passcode.
  1. Forget password functionality in the web.
  2. Resets the password when unlocked on the drawer locally.
     + It only activates when the drawer is unlocked.
     + Reset password on the website.
  3. If wrong password 3 times, u HAVE TO go check your password on the website or reset it locally on the drawer (mechanism will be shown later) in 5 minutes otherwise the buzzer will ring for 10 minutes and after that it locks permanently.
     + The timer resets when the login was successful on the website.
* Battery power for redundancy using a power bank.
* Automated locking instead of manual locking (with a button on the keypad).
* Automatically opens by using an arm to push in and push out the door. (Possible but not a priority)

# Website

* The website requires a separate username and password login page. (Reset password by using security questions (category of stuff inside)).
  1. Toggle the buzzer inside the website. (In case you know that your drawer got stolen).
  2. Lock the drawer permanently until toggle backup. (Can’t be opened). (Could be green but no tutorials imo).)
  3. Log the drawer status using accelerometer.
     + The inside of the drawer is dark and when opened it receives light.
  4. Forget password with security questions. (Different ones to the website login page.
  5. GPS tracking shown here (Found tutorials)
     + Not confirmed because Sumek and sources said that its janky.
     + It’s not accurate but it could be implemented.

# OLED/LCD features

* Displays the status of the drawer.
  1. Unlock and locked.
  2. Wrong Password.
  3. Notices (Count down timer, “Go log in to the website or something”)

# Setup Process

* Drawer
  1. Click the “\*” button on the keypad to begin the setup process.
     + The OLED display will display a message something like “Click \* to setup”
  2. Setup your fingerprint.
     + The OLED display will display something like “Place your finger on the fingerprint scanner”.
  3. Confirm the fingerprint scan by clicking the “#”
  4. Enter your password and hit “#” to save the password.
     + The OLED will show something like “Type your password.”
  5. Confirm the password you just set by entering the password again and hit “#”
     + The OLED will show something like “Confirm your password”
  6. The drawer is now locked with the passcode and fingerprint.
     + The OLED panel will show:
       - The status that of the locker which is “Locked”
       - Shows “Enter your password or scan your fingerprint”
  7. The OLED display then shows the notice “Go setup your security questions at the web interface of this drawer”. (Shows the IP of the drawer or the free domain address).
  8. After setting up the website stuff, the drawer is ready to be use with all functionalities.
* Website
  1. Log in to the website using the drawer’s IP address (or a free domain address) (like a security camera).
  2. The website then prompts the users to setup the username, password, and security questions to login to the website. (Different from the drawer).
  3. The user then logins with their credentials to setup something related to the drawer’s password.
  4. The website then prompts the user to make security questions for the drawer in case you forgot the passcode.
     + It will show you the password or have a button to let the user go reset at the drawer.
  5. The setup on website is finish and the user could login and log out at any time.

# Using the drawer

* Unlocking
  1. Scan the fingerprint or type the passcode.
  2. The drawer then unlocks and opens automatically.
  3. After taking things out or putting things in, close the drawer and hits the lock button. (Or locks automatically).
* Reset the password (drawer).
  1. Unlocks the drawer first and hit “\*” when the drawer is still unlocked to set the password again (Similar process to setup but without the website part).
  2. The password could be reset on the website.
* Forget the password (drawer). (Does not want to reset).
  1. Log on the website/web server.
  2. Go to the forget password tab.
  3. Answer the security questions.
  4. The website then shows you the password.
* Reset the password/username (website).
  1. Click forget the password/username.
  2. Answer the security questions.
  3. The website then allows you to make a new password to login.

# Security measures

* Fingerprint sensor.
* Passcode.
* Security questions verifications.
* Buzzer alarm.
* Permanent lock.

# Ease of use features

* Automatic locking
* Automatic opening and closing.

# Work Distribution

* Locking Mechanism
  + Password. - Most
  + Fingerprint - Fin
  + Buzzer alarm features (including countdown timer)- Med
* Drawer Design
  + Automatic locking - Fin
  + Linear actuator locking - Most
  + Designing of components placements in the drawer – Most and Med
* Website (Putt)
  + Pure software parts (Login credentials) - Putt
  + The features that connected with hardware (Buzzer toggle, Permanent lock toggle). – Putt and Most