Sept. 21st

Priority for physical side is on the robot and its traversal.
→ Once traversal tasks accomplished, detailed retrieval and delivery mechanism needed to be worked with

Software side, server takes precedence for creation, since it is the most computational intensive aspect on the one side.

Two way conversation to ensure part existance, and ability to get. Also will apply to use position.
→ May use a list sent from server to the app to make sure proper information is transmitted & requested,

App will act as a basic portal into the server. Login information (w/ password) will provide security to system

# SOFTWARE DEV (9/29 → 10/4)

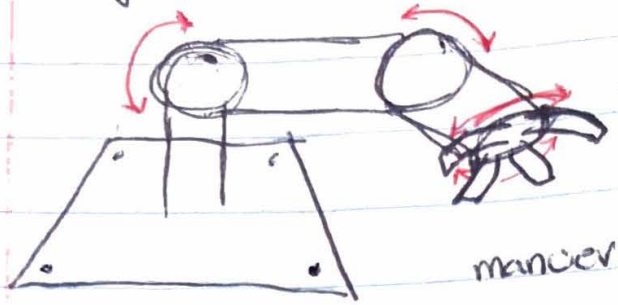
- MOVED INSTANCED THREAD FROM MANAGER & to SOCKET CONNECTION

- CREATED CONTAINER FOR CLIENT SOCKETS, WHICH ARE ADDED ON instation, SO FOR EACH CAN BE USED

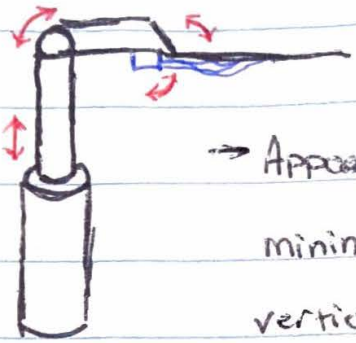
ADDED DATA FIELDS TO SOCKET TO STORE I.P. DEFINED ROBOT IP'S AS 10.0.10.10 → 10.0.10.15 & ANDROID DEVICES 10.0.10.20 → 10.0.10.25

SOCKET MANAGER/CONNECTIONS almost DONE, NEED TO PUSH RECEIVED MESSAGE TO MANAGER FOR HANDLING & REPLY DISTRIBUTION

Object Retrieval Concept

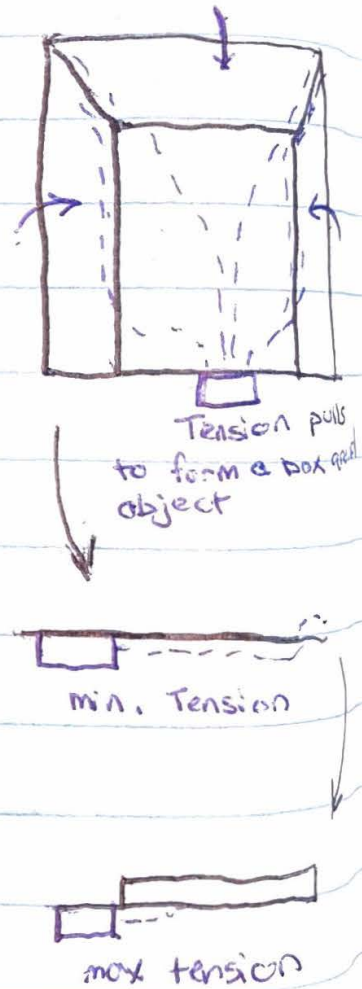


- Claw mechanism
  - → Rotational abilities could offer greater maneuverability and part pick-up accuracy



- Plate Capture Mechanism
  - → Appears to be less complex due to minimal rotations. Although linear vertical motion seem complex

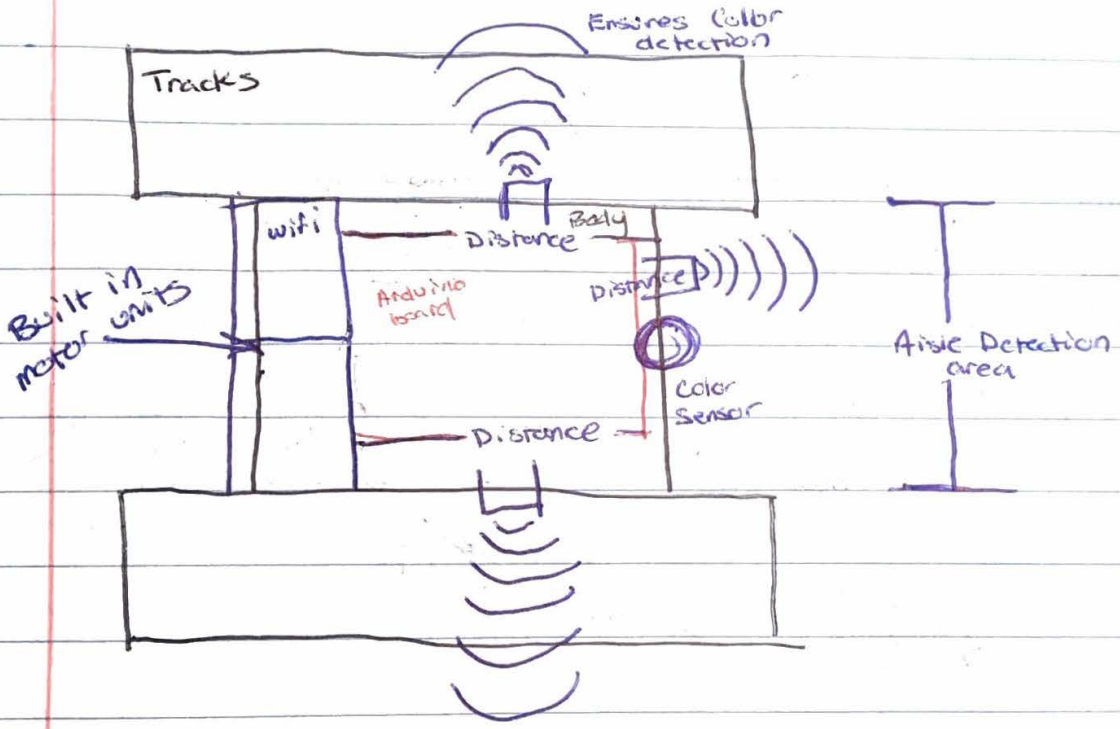
| Pro's | Cons |
|---|---|
| • Size, shape variation easier | • Multiple motor control |
| • Increased Accuracy | • Center of gravity issues |
| • Greater maneuverability | • Power Consumption for motors |
| • Uses minimal rotation | • linear up/down seems complex... maybe not |
| • Simple construction. | • lightweight objects hard to slide underneath |
| • easiest w/ items in a box | • Tensioner prone to cable snapping |



Oct. 5th
State Hall, 4th floor

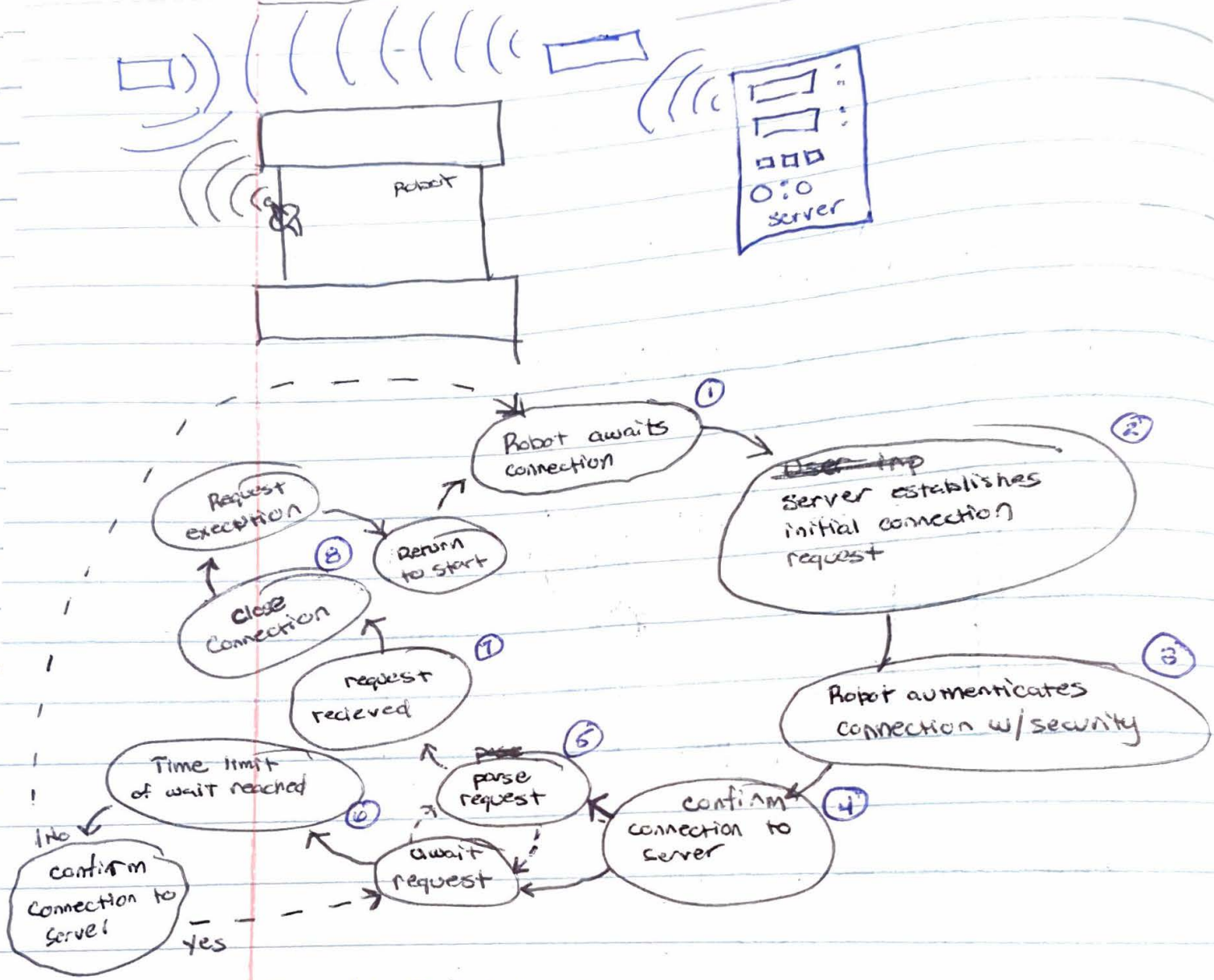
# Jacob & Faddi Meeting

- Finalized all mechanical designs and concepts for navigation and aisle detection
  - Color sensor determines the aisle marker
  - Aisle minimum width determined.
  - All components ordered.




- Retrieval arm still in discussion. Pre-assembled arm possible?
- Division of specific responsibilities discussed further.
  - Navigation design - Faddi
  → includes programming
  - Arm Retrieval - Faddi & Jacob
  - Server Connection & dissemination - Jacob

# TCP/IP Connection Concepts




## Detail Breakdown

① Open robot to recieve a network request, Only having it open while no connection has been made, Power saving.

② Server initiates initial contact (making it the starting client). Passing a security packet through an opened socket. As well as command to close step ①

③ Security needs: Authentication of request by server. Maybe:

Ideas:
- Encryption key; deciphered signal could only be readable by a certain key on server side.
- Cooroberated random number generation via a synced clocking.
- Special IP packet design.
- Dual authentication, requests password user inputted

④ Robot confirms connection and executes closure of step ①. Instructs server to send request.
→ Goes into wait mode

⑤ Server sends request

⑥ TCP/IP requires continuous confirmed connection, so wait protocol can only go for so long, then it must confirm connection again (handshaking)

⑦ Request is recieved, and disemenated.

⑧ TCP/IP connection closes