



SMART MERCHANDISE STORAGE

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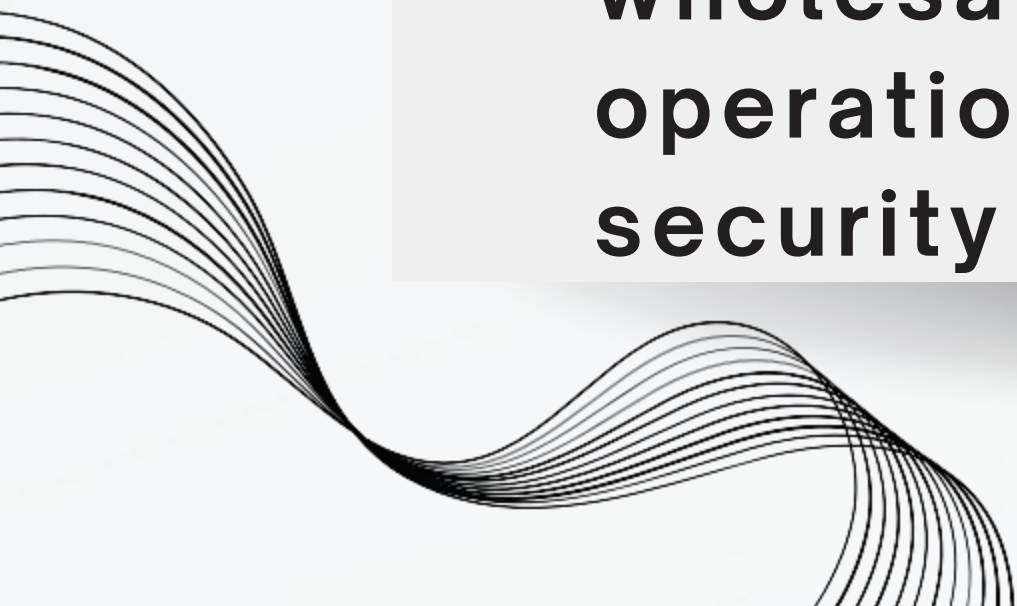
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MOTIVATION

💡 The difficulties faced in manually managing wholesaler storage, which encompasses security risks, improper stock management, safety hazards, and operational inefficiencies.

💡 The prevalent need for an innovative and comprehensive solution in the wholesale industry to enhance operational efficiency, safety, and security



WHAT IS SMART MERCHANDISE STORAGE?

The Smart Merchandise Storage project is an automated storage and retrieval system that leverages three-axis movement to accurately and efficiently manage, store, and retrieve goods in a warehouse setting.



OBJECTIVES

- **STRENGTHEN SECURITY**
- **EFFICIENT HANDLING**
- **CONVENIENT ORDERING**
- **SAFETY ENHANCEMENT**
- **EFFECTIVE INVENTORY MANAGEMENT**



FEATURES



RFID TECHNOLOGY

Restricts access
and payment to
authorized
personnel only.



XYZ ARM MECHANISM

Facilitates the
handling of large
and heavy
merchandise boxes.



VOICE RECOGNITION

Allows for
convenient order
placements via
speech.



KEYPAD TECHNOLOGY

An alternative to
voice recognition
for placing orders.

FEATURES



FIRE DETECTION

Timely alerts for
fire emergencies.



REAL-TIME NOTIFICATIONS

Automatic alerts
for out-of-stock
scenarios.



MOBILE APPLICATION

Enables order
placements and
real-time updates
via a mobile app.



WEBSITE PORTAL

Allows the owner
to manage
inventory.

HARDWARE COMPONENTS

ARDUINO MEGA 2560



RFID



KEYPAD



LCD



ESP8266



FLAME SENSORS



SERVO MOTOR



COOLING FAN

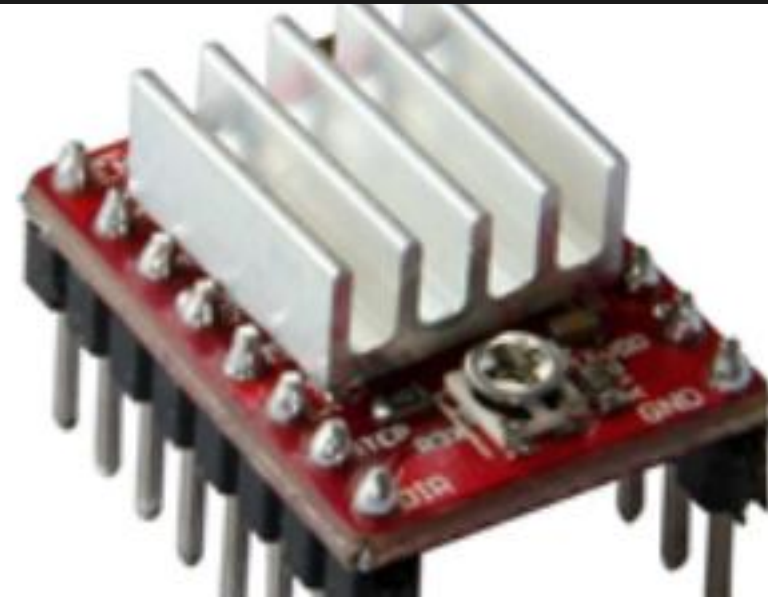


HARDWARE COMPONENTS

STEPPER MOTORS



A4988 DRIVER



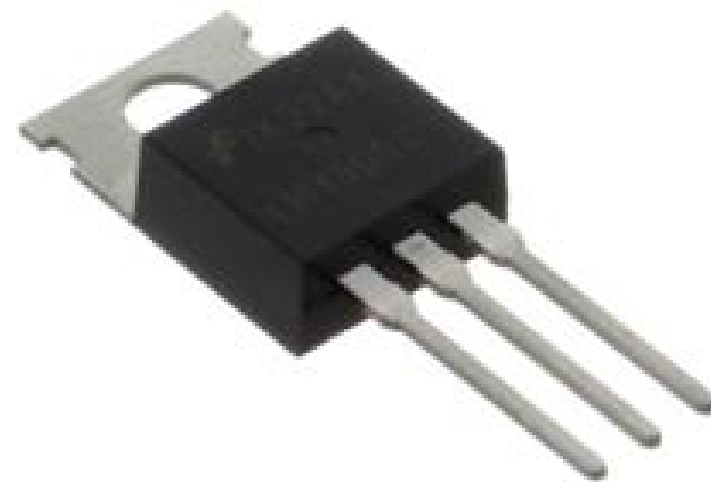
LIMIT SWITCHES



POWER SUPPLY



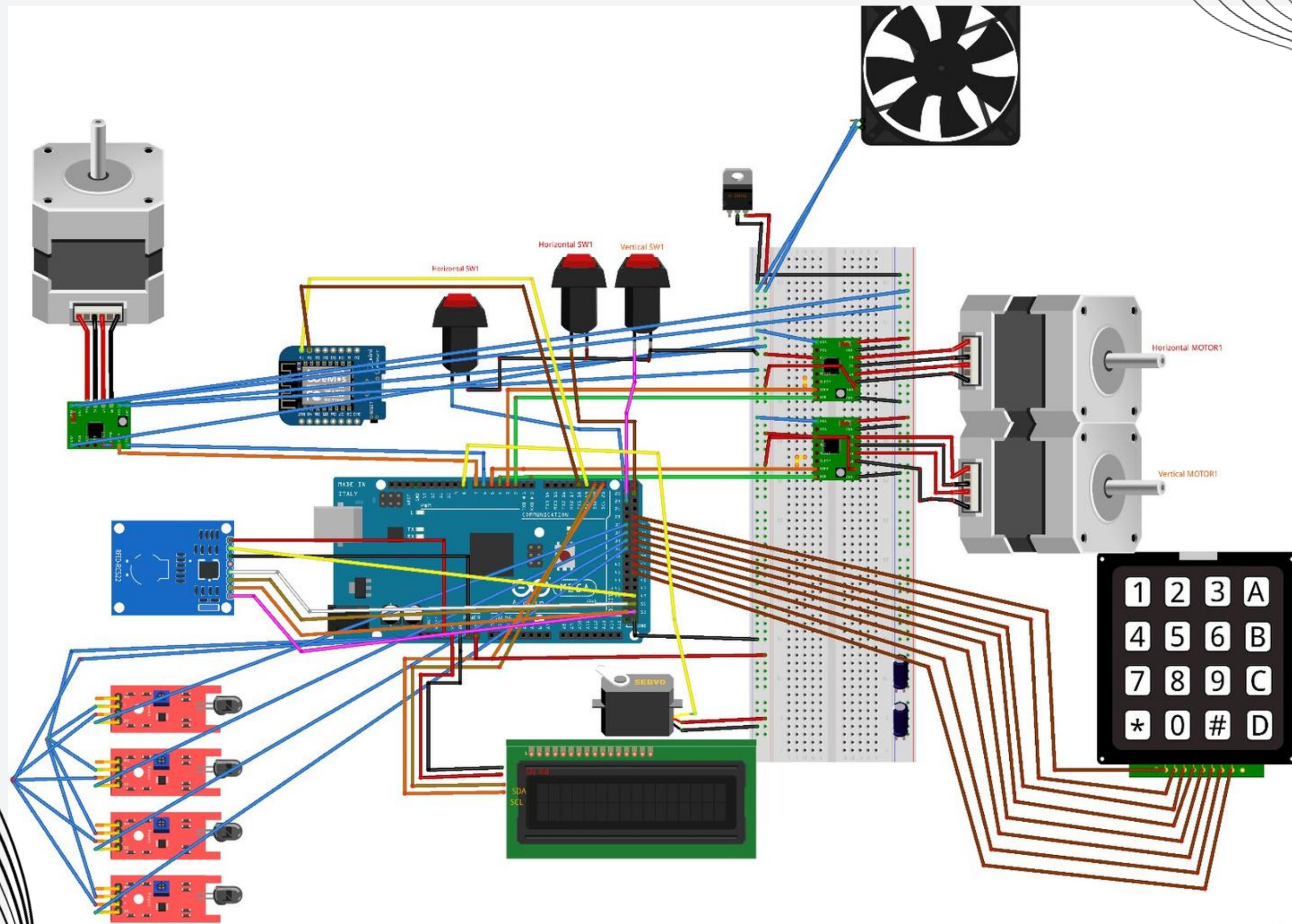
REGULATOR



BUCK-BOOST
CONVERTER



SCHEMATIC DIAGRAM



HOW OUR SYSTEM WORKS?



01. RETAILER SELECTS PRODUCT

Retailer chooses a product.

02. PRODUCT DETAILS

A screen displays the selected product, quantity, and total price.

03. PAYMENT

Retailer confirms the order and initiates payment.

04. CARD SCAN

Retailer scans their RFID card for identification.



05. ACCOUNT VERIFICATION

The system verifies the RFID card's ID. It checks if the retailer's account has sufficient funds.

06. PAYMENT PROCESSING

If the ID is recognized and funds are available, the system deducts the total price from the retailer's account.

07. PRODUCT RETRIEVAL

The XYZ arm retrieves selected products and places them at the retailer's retrieval window.

ADMIN WEBSITE

Charge Card

Card ID:

Amount:

Submit

Add Product

Product Slot:

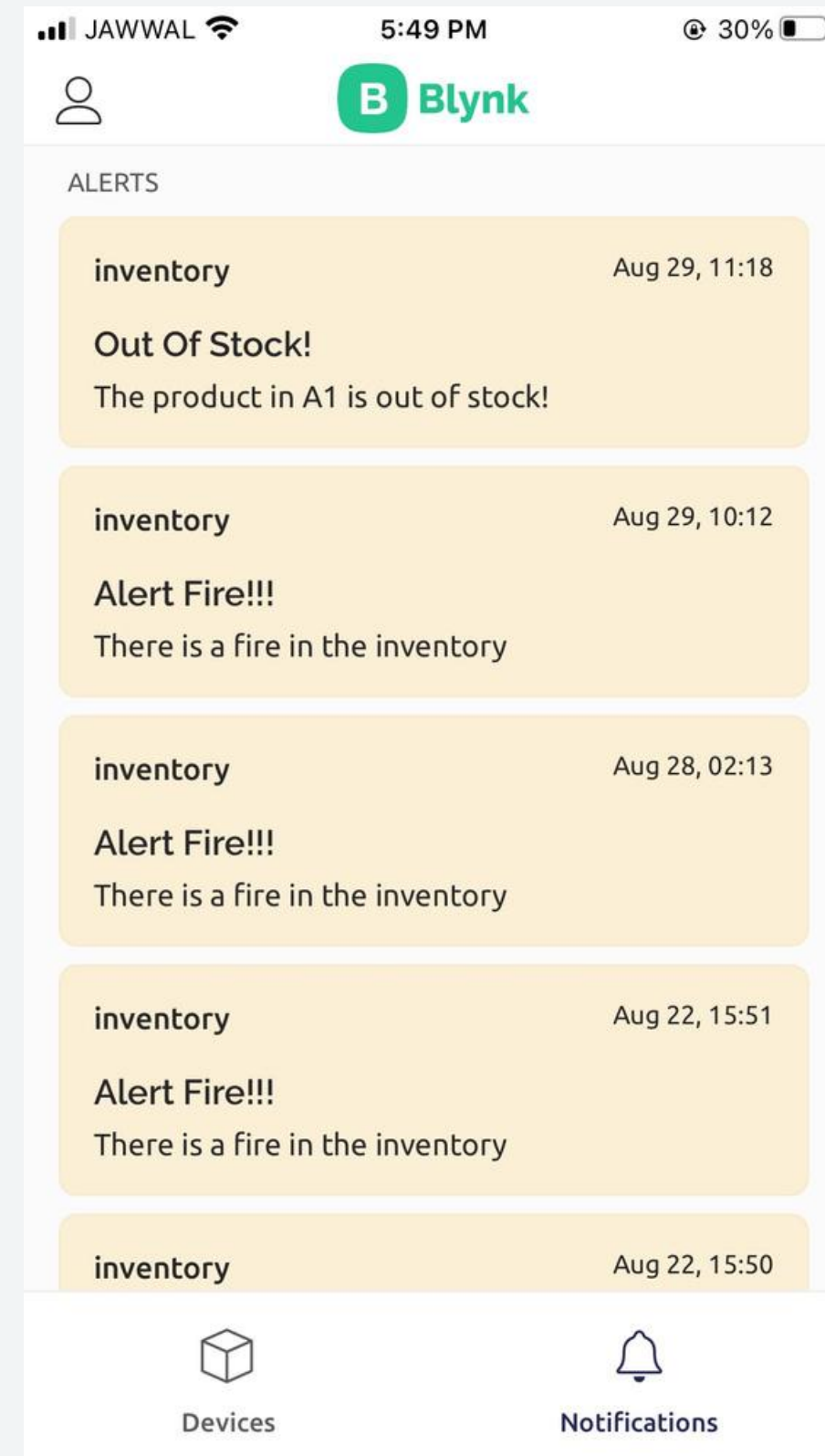
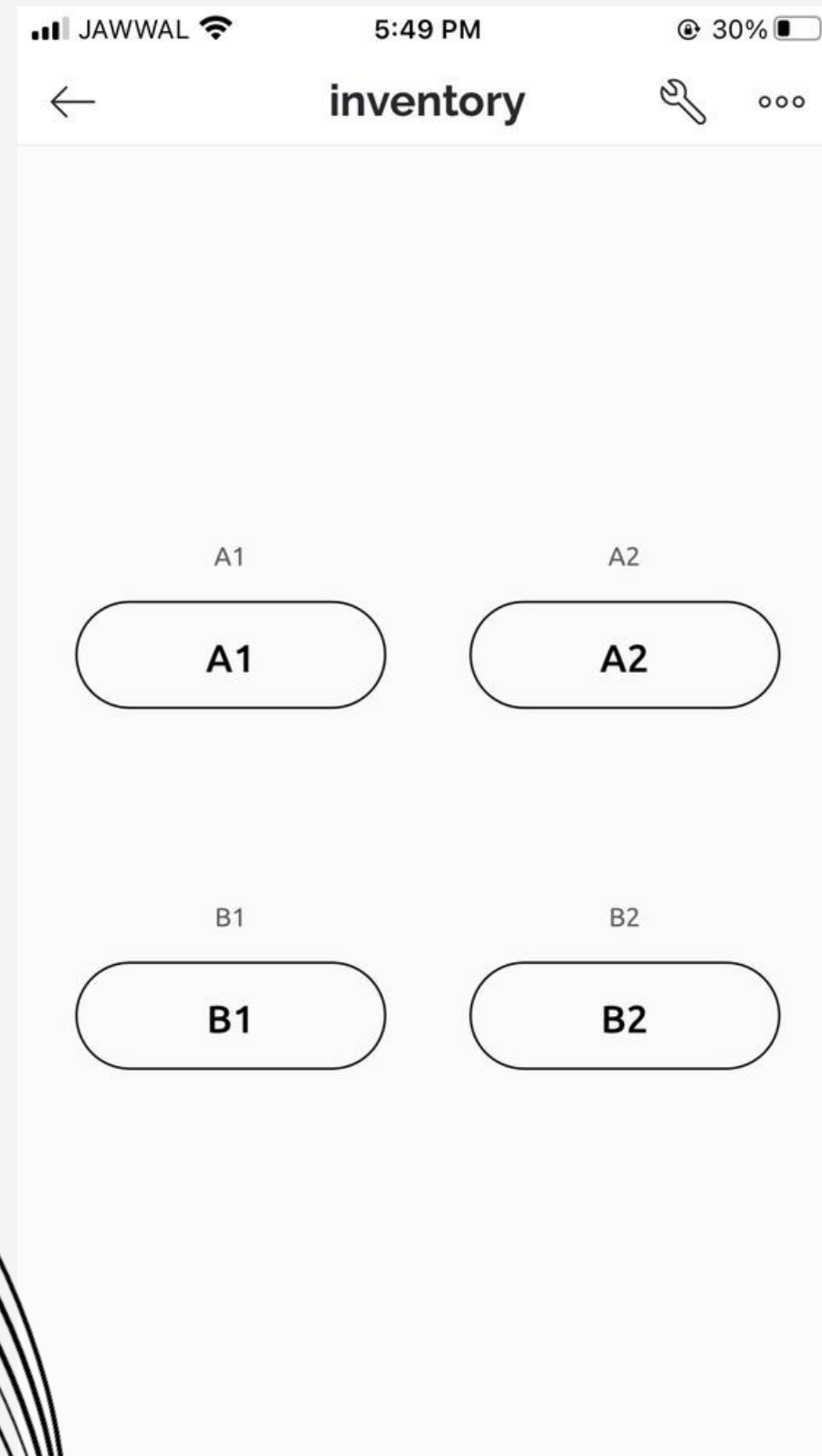
- A1
- A2
- B1
- B2

Amount:

Price:

Submit

BLYNK MOBILE APPLICATION



FUTURE WORK

- **EXPAND STORAGE CAPACITY**
 - **Artificial Intelligence Recommendations**
 - **Restocking Method**
 - **Conveyor Belt System**
 - **Infrared Sensors for Product Confirmation**
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THANK YOU

