Graduation Project 2

STATIONERY SPOT

Aya Khammash
Nahida Aghbar

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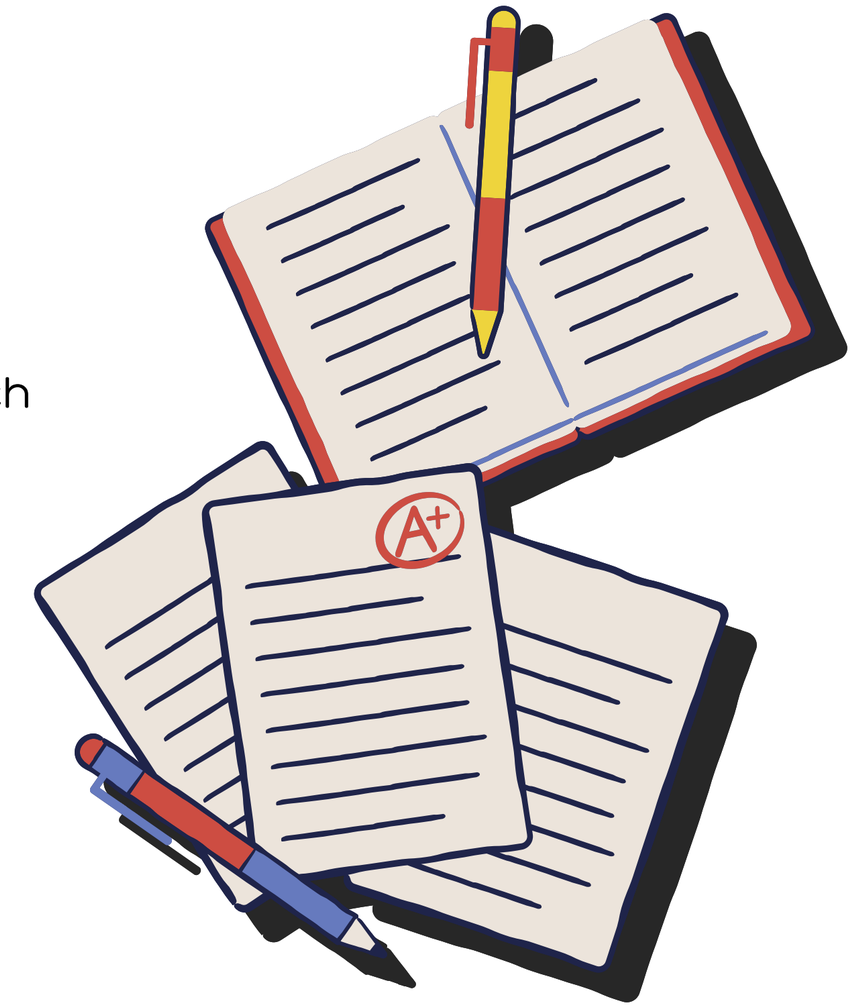
INTRODUCTION

Stationery Spot is an automated vending machine dedicated to dispensing essential educational supplies such as sticky notes, pens, calculators, and other stationery items. This project's main goal is to provide an easy, fast and efficient way for the students and teaching staff alike to have access to the needed supplies on the go without the need for them to make the trip to a store that sells them.



MOTIVATION

In educational and professional environments, the need for basic stationery supplies often arises unexpectedly, making interruptions in workflow and productivity. Finding essential items like pens, sticky notes, or calculators often requires leaving the workspace, going to multiple stores and check if they’re open at that time, and in some times students have exams and they may forget their pens or calculators, when they are in a hurry they find the store closed. which can be time-consuming, inconvenient and takes effort. This doesn’t only disrupts tasks but also makes people less efficient and frustrated.

GOALS AND OBJECTIVES

An innovative machine created to make the process of buying stationery supplies simpler and easier.

Integrates payment solutions and up-to-date information on prices and items in-stock.

Saves time and effort especially in urgent situations.

PROJECT DETAILS

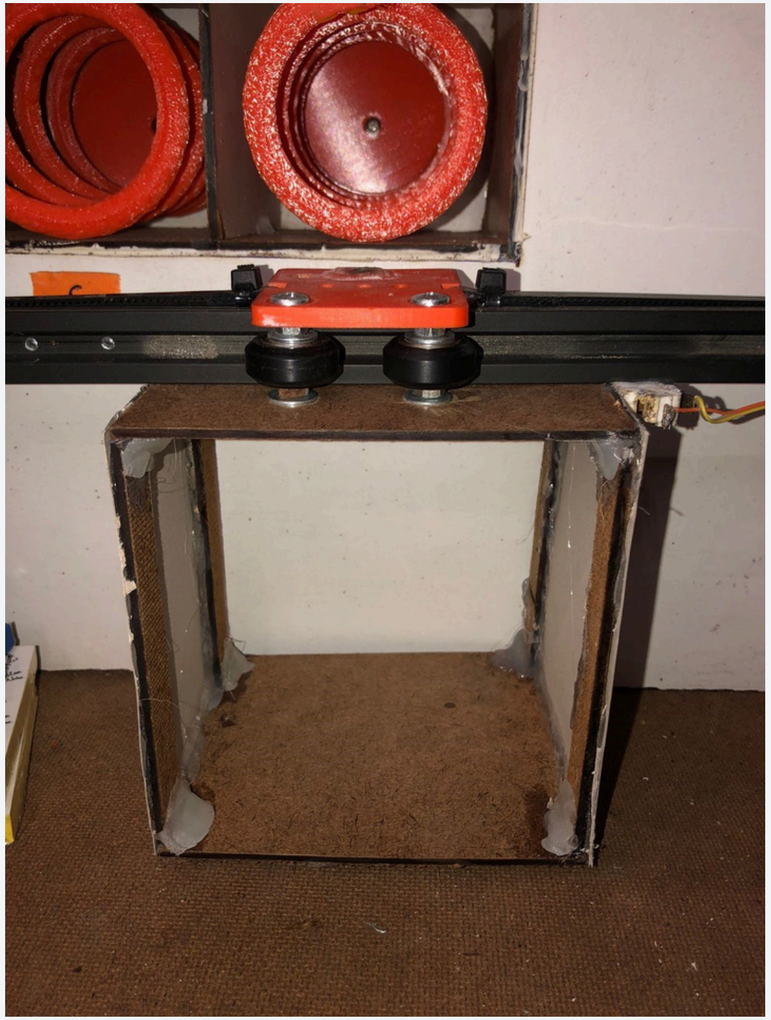
DESIGN

STANDARDS & TOOLS

FEATURES & HARDWARE COMPONENTS

MOBILE APPLICATION

DESIGN

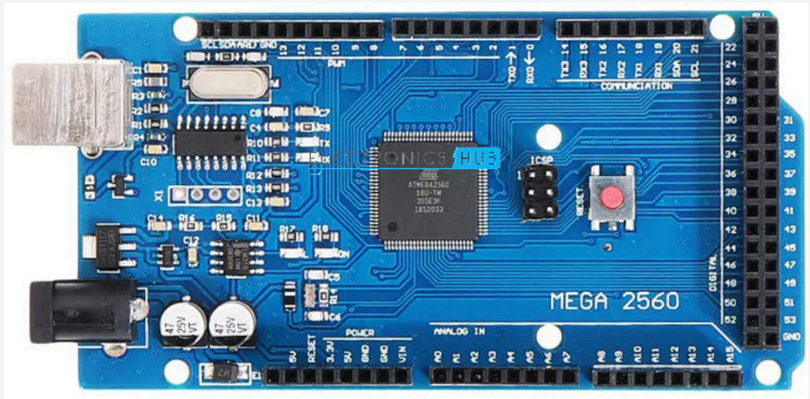


DESIGN

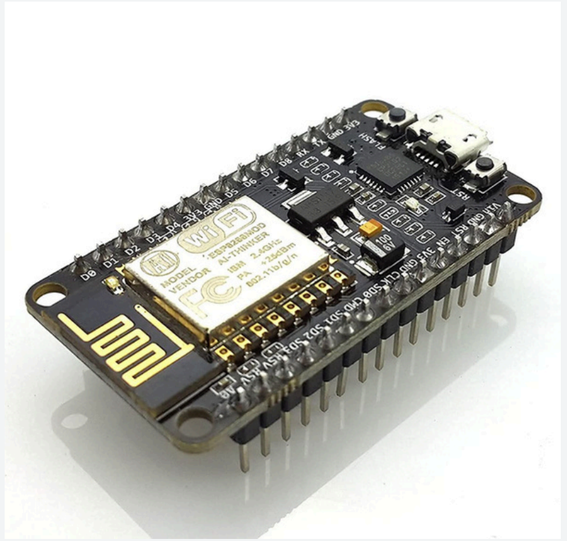
STANDARDS AND TOOLS

Hardware main components:

Arduino Mega 2560



ESP 8266



Software environments:

Arduino IDE

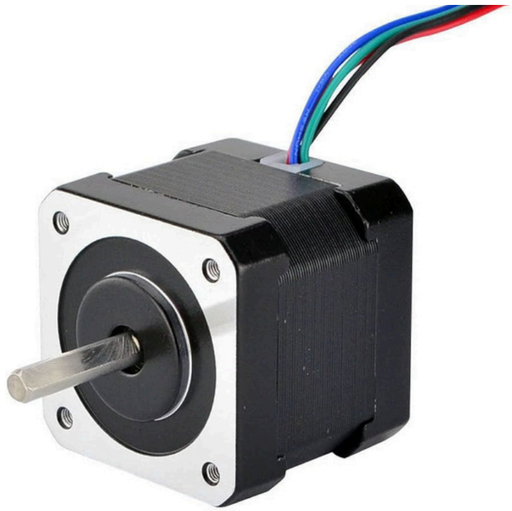
Blynk

FEATURES & HARDWARE COMPONENTS

DESPINSING ITEMS

Servo motors mg995

CNC WITH A BASKET



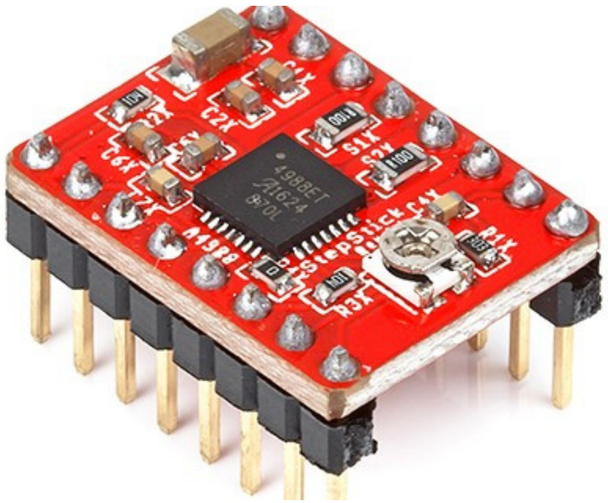
Stepper Motors Nema 17

Linear Guides

Limit Switches

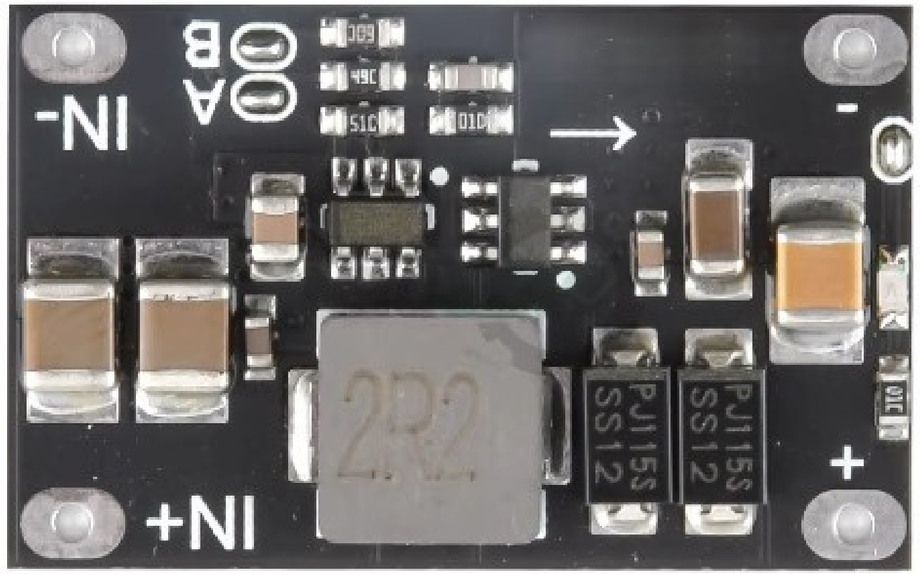
FEATURES & HARDWARE COMPONENTS

MOTOR POWER SUPPLY CiRCUiT



A4988 Stepper Motor Driver Module

DC-to-DC Converter 12v-5v 2A



DC-to-DC Converter 12v-5v 1.5A

FEATURES & HARDWARE COMPONENTS

INPUT DEVICE

Keypad 4x4

READING TAGS FOR PRIVILEGES

RFID Reader

Admin's Tag

User's Card

FEATURES & HARDWARE COMPONENTS

OUTPUT DEVICE

LCD 20x4

LCD Driver Module with I2C Interface

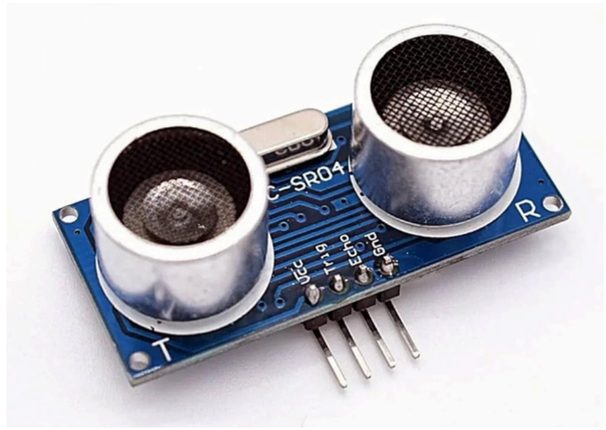
SOUNDS WHEN PRODUCTS NEED TO BE COLLECTED

IR Sensor

Buzzer

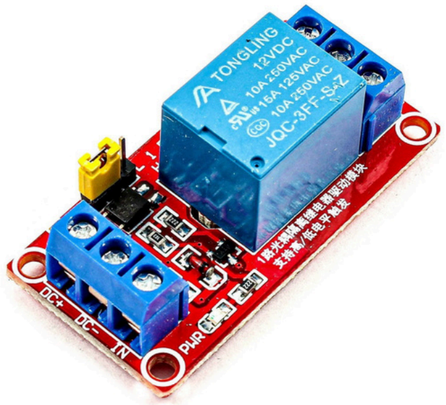
FEATURES & HARDWARE COMPONENTS

LIGHTENING



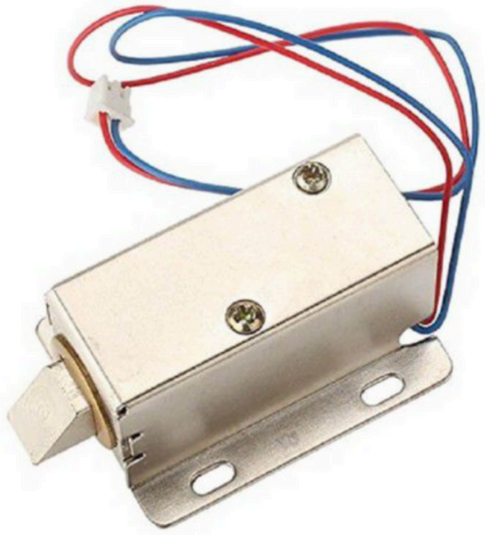
Ultrasonic Sensor

Light Strips



Single Channel Relay Module

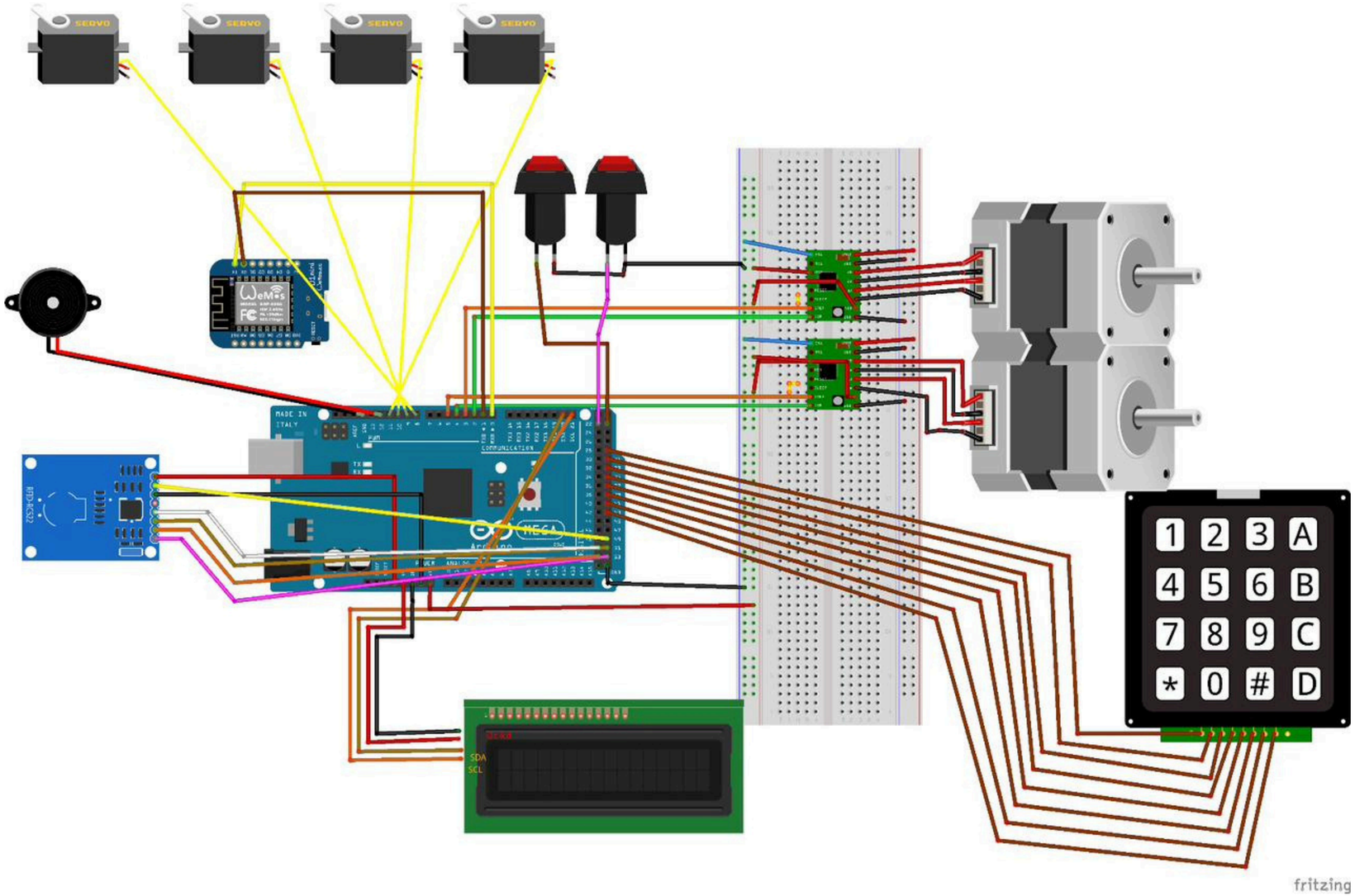
SECURITY



Lock

FEATURES & HARDWARE COMPONENTS

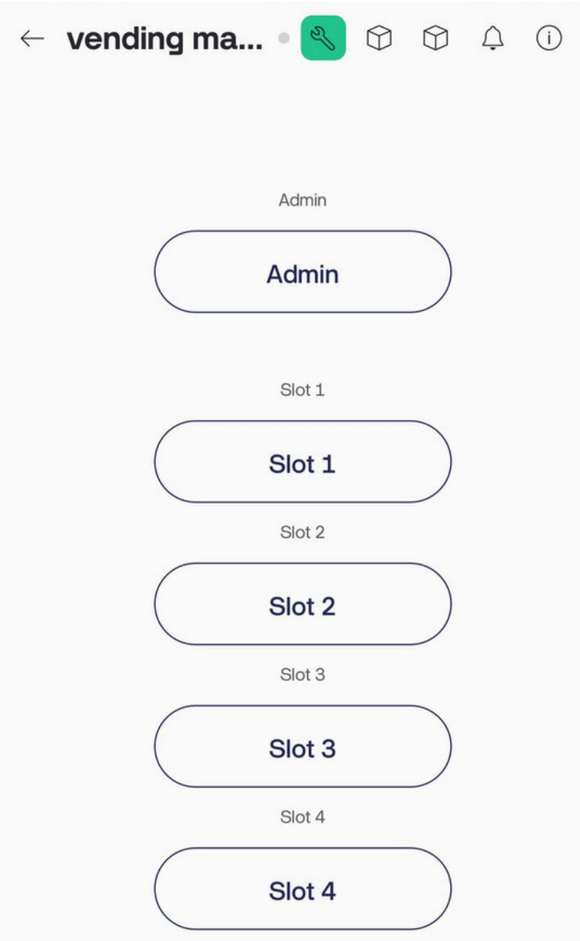
SOME OF THE CONNECTIONS



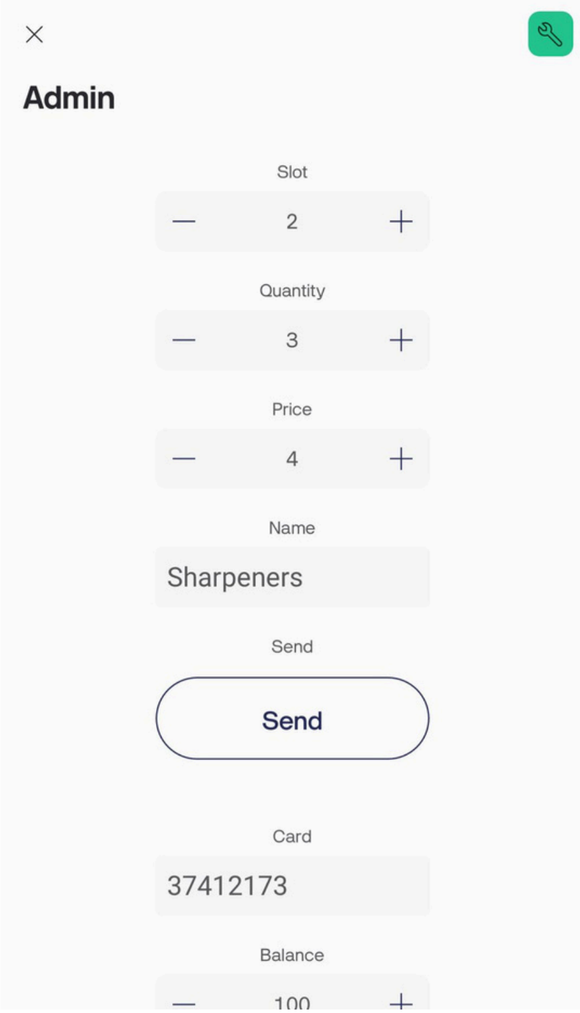
MOBILE APPLICATION

We developed a mobile application on Blynk with many features. There's a section for the admin and another for the user (customer).

Dashboard:



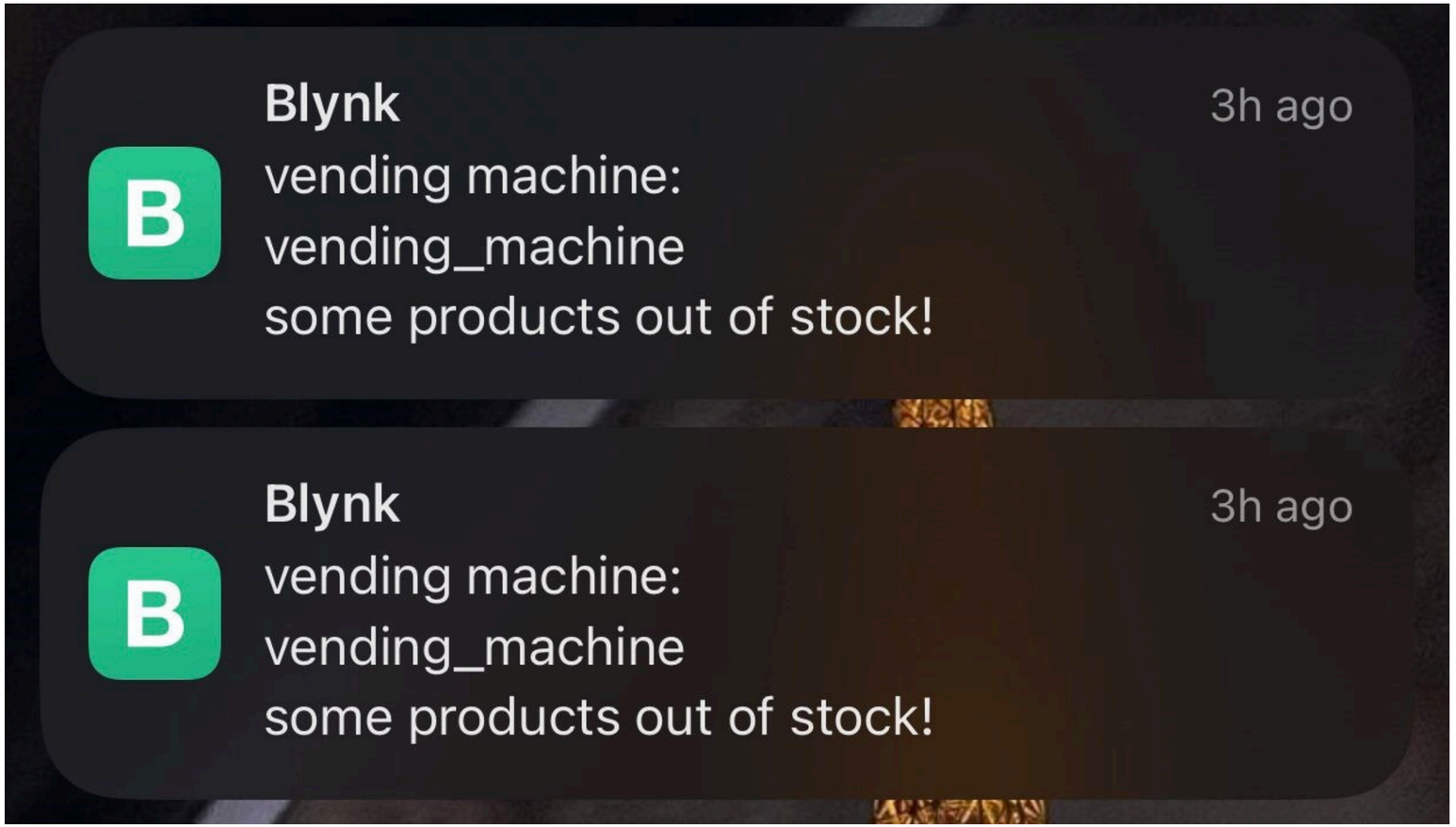
Admin's Page:



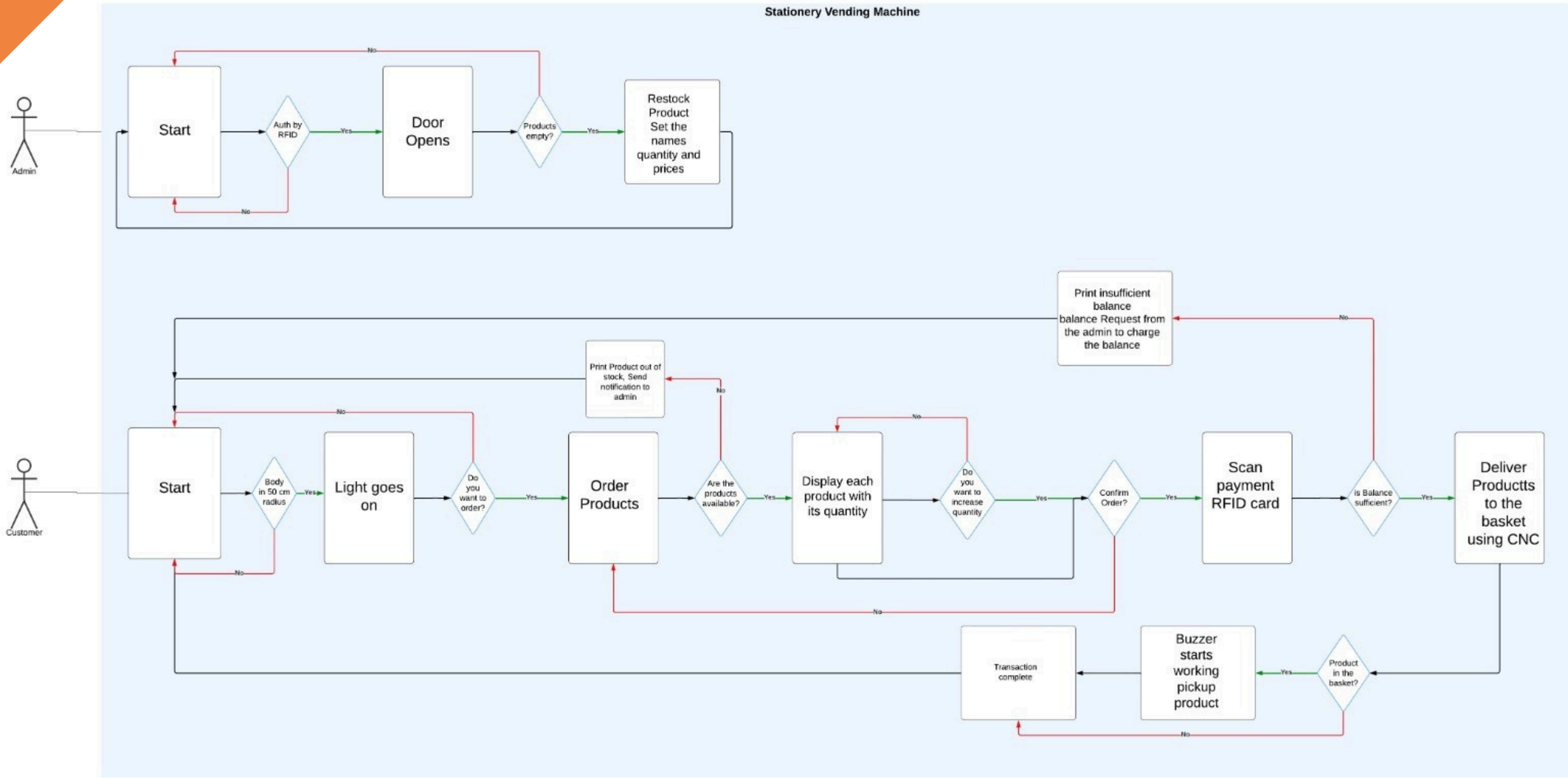
Customer (user) Page:

MOBILE APPLICATION

Notifications are sent to the admin on the app whenever a slot of the vending machine is out of stock, so he gets informed to restock the items.

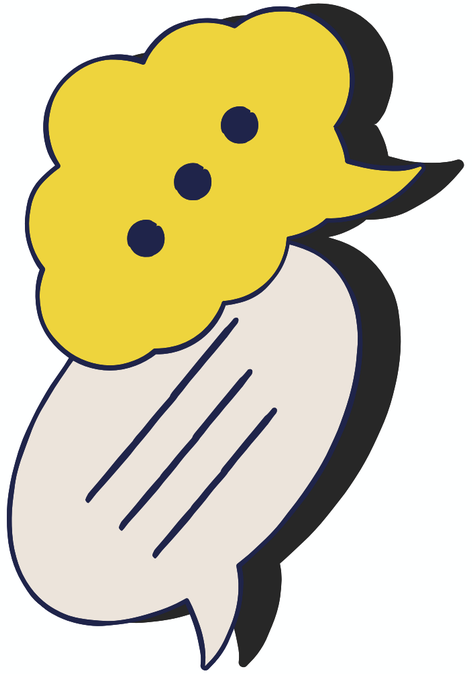


SYSTEM PROCESS OF WORK



CONSTRAINTS

- COST AND BUDGET.
- PROCUREMENT, COMPONENTS AVAILABILITY, AND LOGISTICS CHALLENGES.
- TIME DURATION.

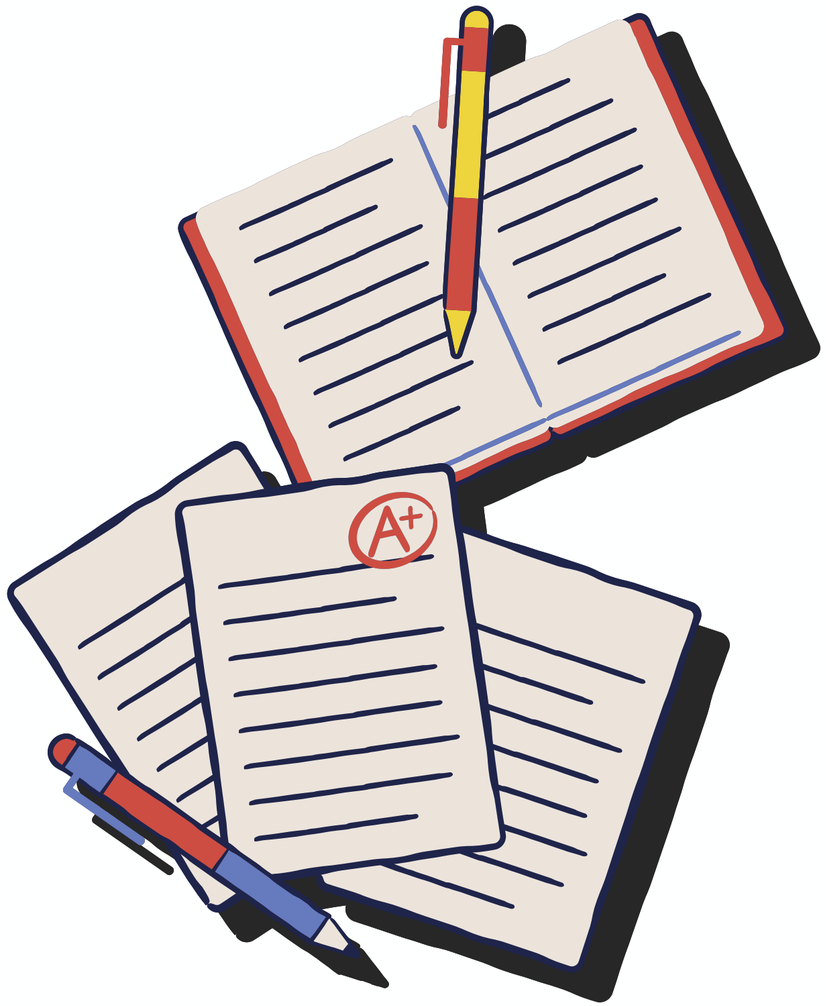


FUTURE WORK

- ENHANCED SECURITY MEASURES.
- INTEGRATION OF DIGITAL ADVERTISEMENTS.
- INTERACTIVE TOUCH SCREENS.
- INTEGRATION OF VOICE CONTROL FOR USER INTERACTION.
- UTILIZATION OF IR SENSORS FOR STOCK MONITORING.
- INTEGRATION OF AI AND MACHINE LEARNING.
- TOKENS AND COUPONS.

CONCLUSION

In conclusion, our project Stationery Spot smart vending machine successfully shows an innovative solution for a convenient access to stationery items in public places such as universities, schools, work places, and offices. Stationery Spot symbolizes a step forward in automating the supply of everyday stationery items, boosting convenience, and providing the needs of students, educators, and professionals in busy environments.



DEMO

NOW LET'S WATCH THE LIVE DEMO!


THANK YOU!
ANY QUESTIONS?