

SmartConnect Logistics System

Unboxing the Future: Transforming Logistics with Smart Innovation

Al-Najah University ✦ Computer Engineering ✦ 2024



Agenda

01 **Introduction**

02 **Project Execution**

03 **Hardware Components**

04 **Mobile Application**

05 **Constraints**

06 **Future Work**

Introduction

Problems

Problem 1

Inefficiencies in Package Tracking.

Problem 2

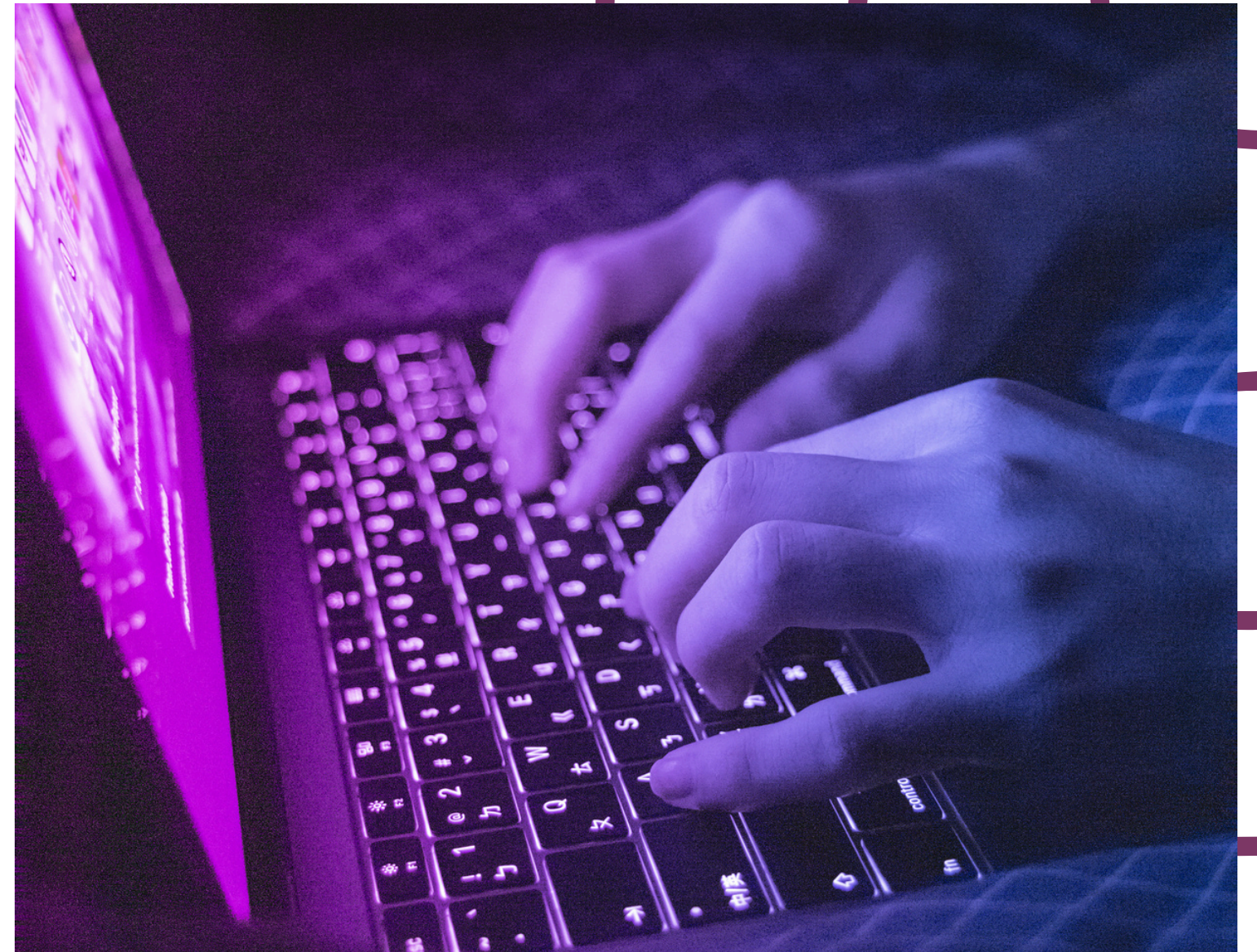
Security Concerns.

Problem 3

User Inconvenience.

Problem 4

Operational Inefficiencies.



Objectives

Objective 1

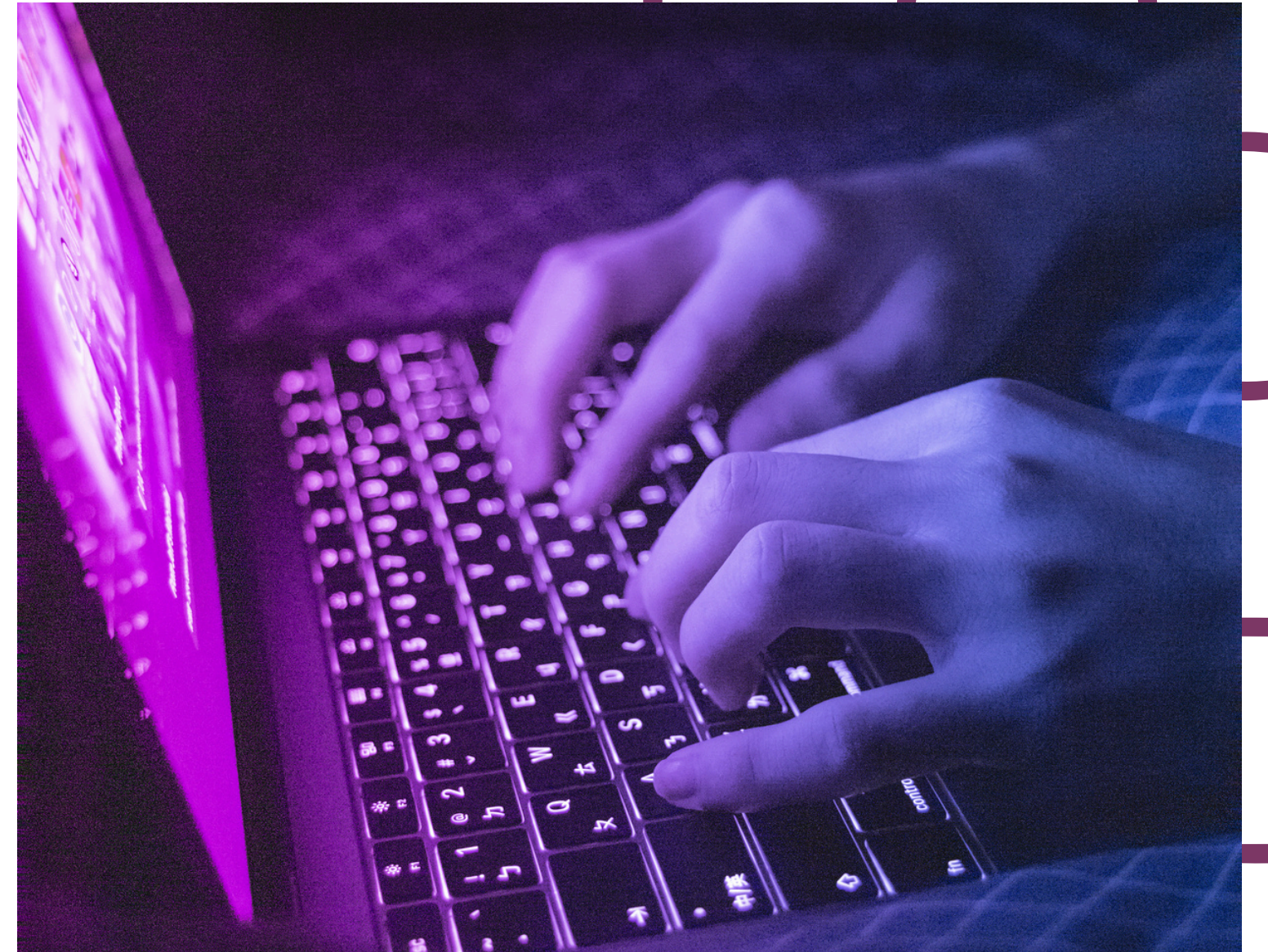
Developing an advanced logistics solution that caters to the evolving needs of users and the industry.

Objective 2

Providing a secure, efficient, and adaptable package management experience through the integration of smart locks, autonomous transportation, and user-friendly mobile applications.

Objective 3

Establishing a system that ensures secure package access for end-users.



Project Execution

01

A locker for storing the packages

02

A locker as a delivery point for the user to put packages in it, and take packages from it.

03

Automated Car for Package delivery

04

Robotic Arm to pick the packages and place them.

Hardware Components



I/O Components



Keypad



LCD+I2C

I/O Components

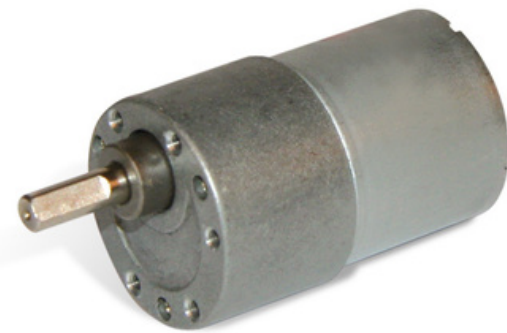


RFID



Barcode Scanner

Motors

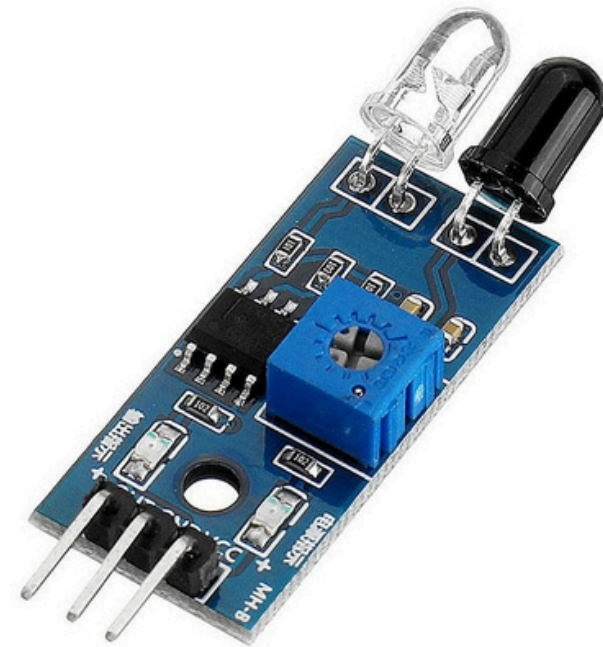


DC



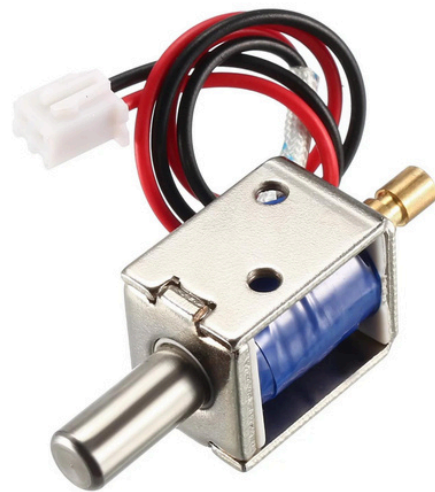
Servo Motor

IR Sensor



IR Sensors

Locker Components

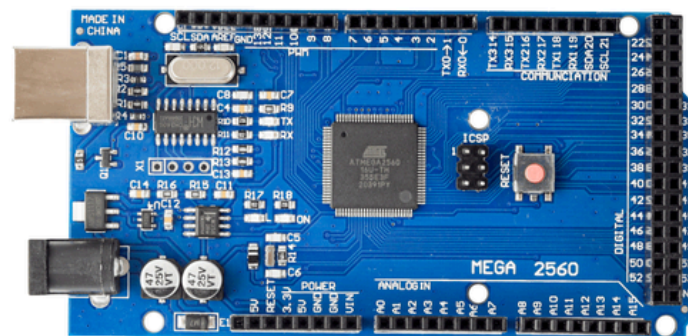


**Solenoid
Lock**



Ultrasonic sensor

Micro Controller

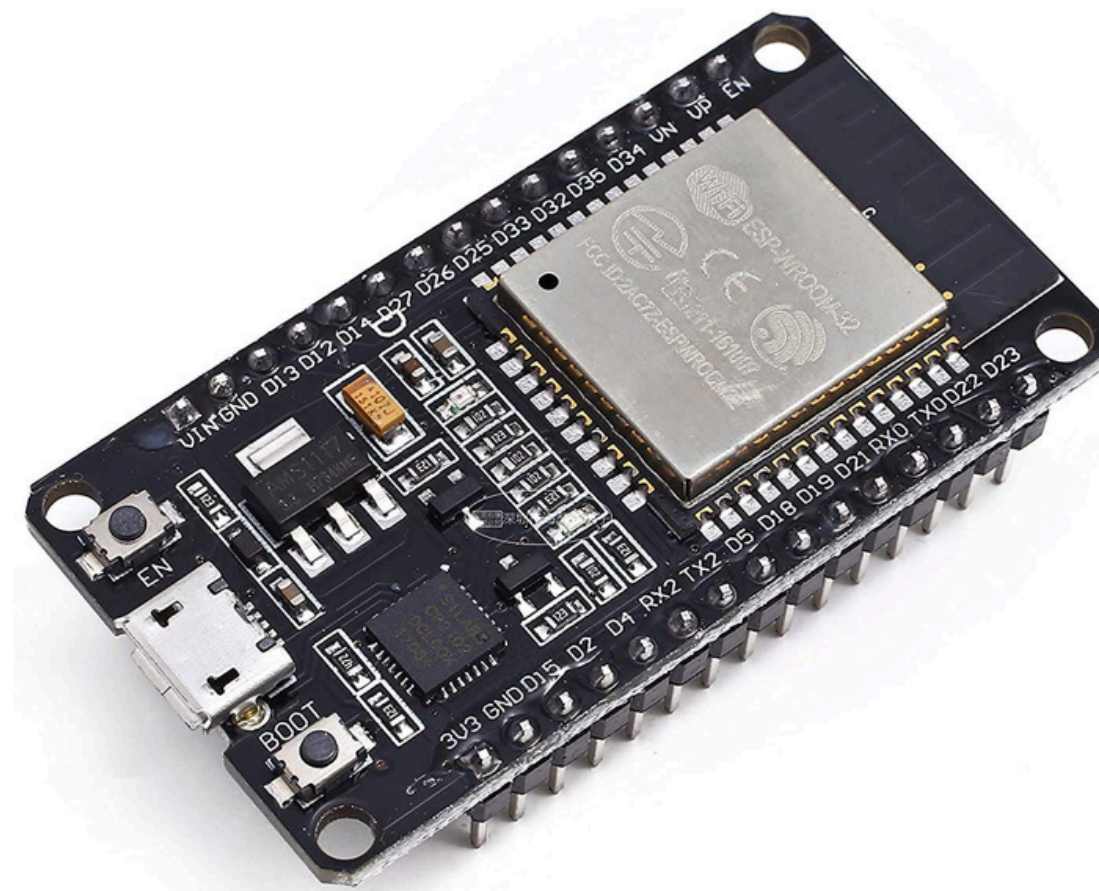


**Arduino
Mega**



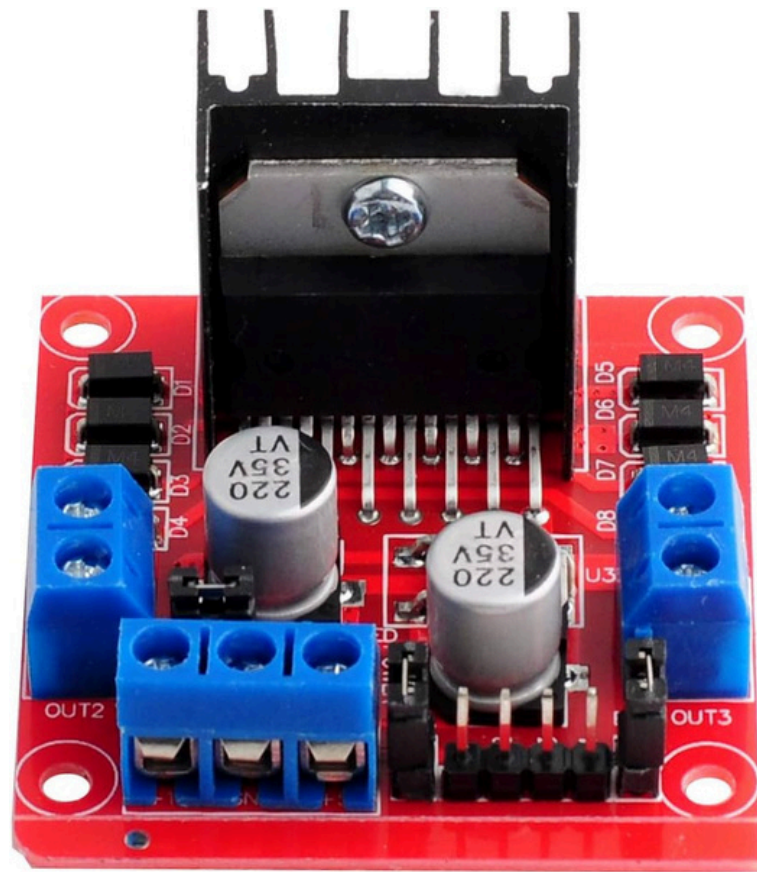
Arduino uno

Micro Controller

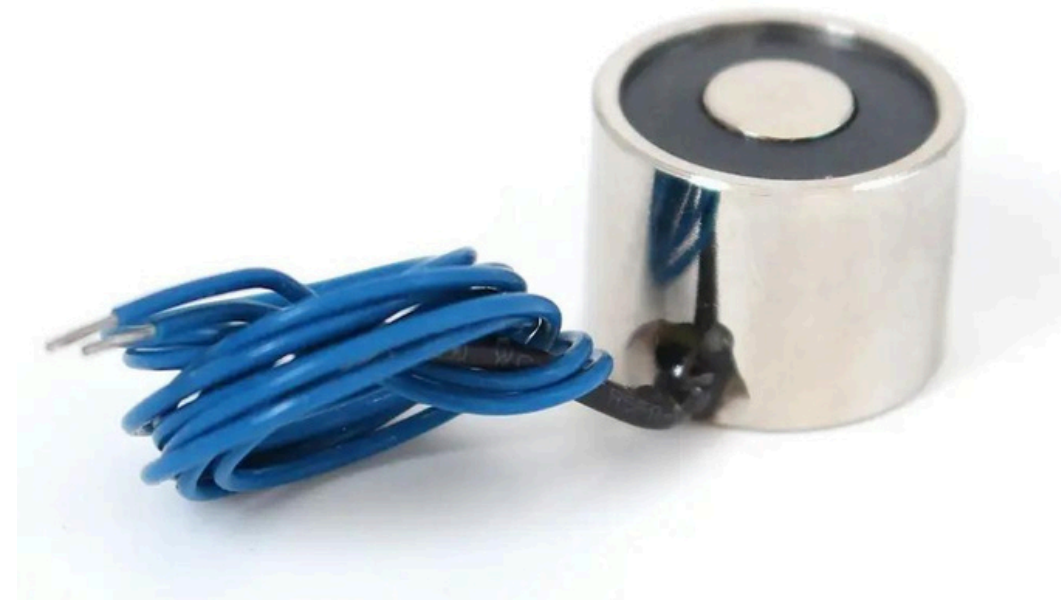


ESP32 + ESP8266

More Components



H-Bridge

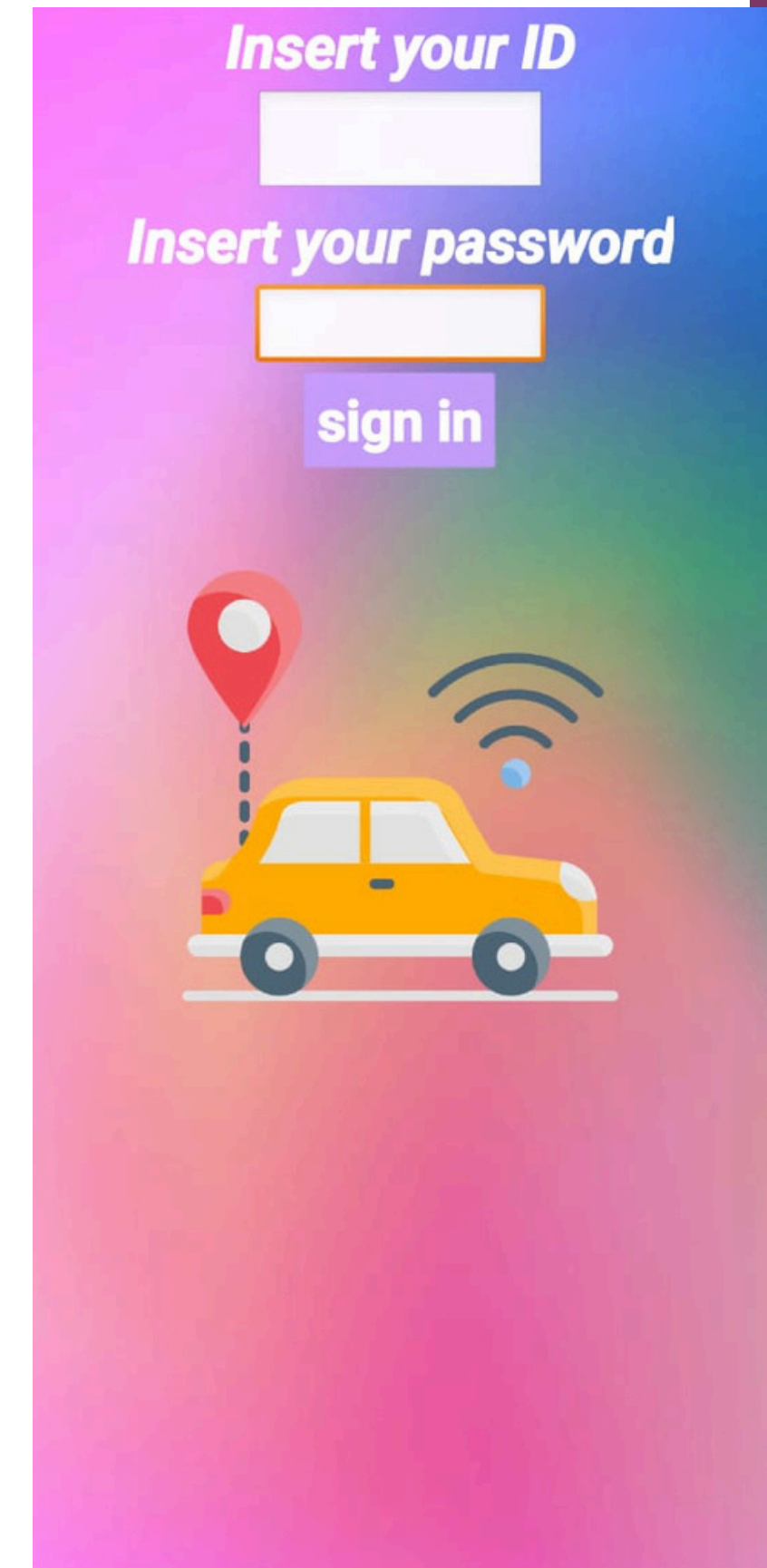


Electromagnet

Mobile Application



Sign in Page



User Sign in:

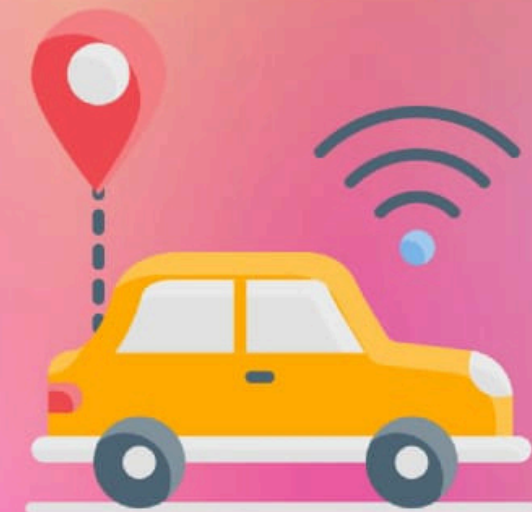
Choosing delivery point

choose the nearest delivery
point to you

Delivery point 1

Delivery point 2

Sign Out



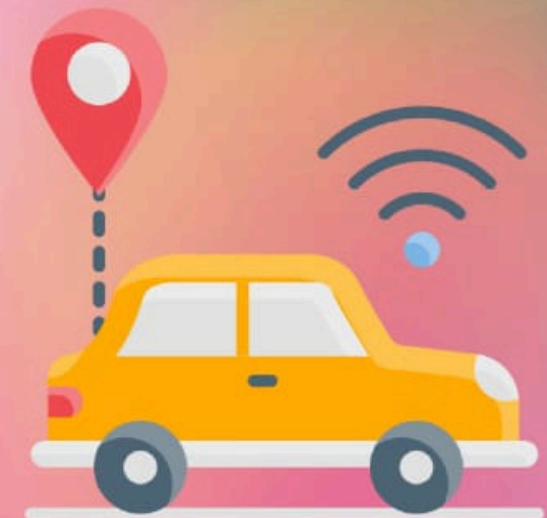
User Sign in:

Scanning the Barcode

Scan the Barcode for your package

Scan Barcode

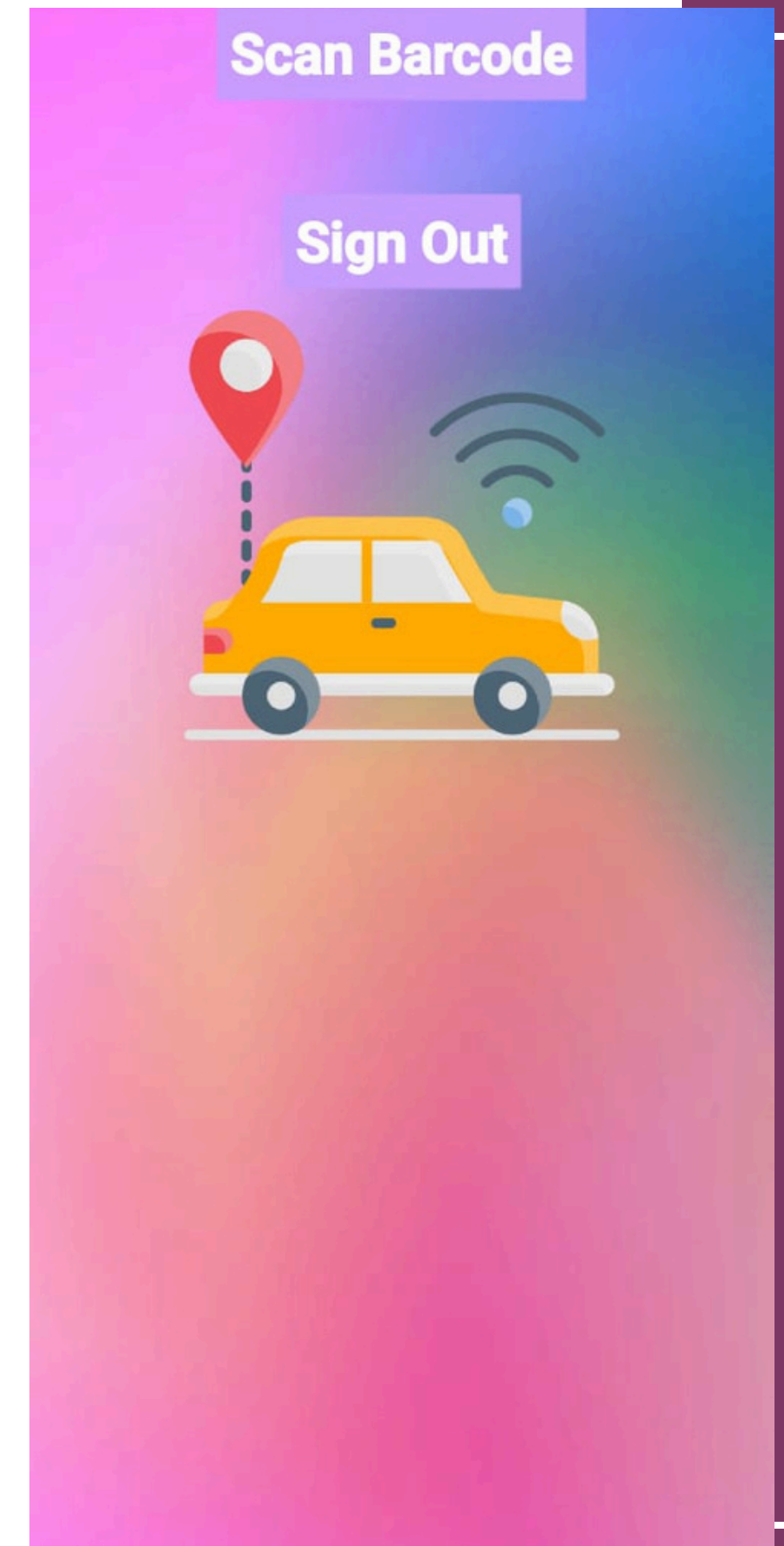
Sign Out



Back

Admin Sign in:

Scanning the Barcode





Constraints

01

Power Supply Challenges

02

Microcontroller Limitations.

03

Robotic Arm Design Issues

04

Car Design Modifications

05

Path Tracking Accuracy of the Car.



Future Work

01

Enhancing scalability for broader application.

02

Improving system security and addressing vulnerabilities.

03

Exploring sustainable energy solutions to increase efficiency.

04

Refining the user interface for better user experience.

05

Integrating advanced AI algorithms for smarter package management.

06

Continual adaptation to evolving technology and industry needs.

Thank You!