AutoXchange

AutoXchange

currancy exchange have never been easier

Get Started

AutoXchange

introduction

WHAT IS EXCHANGER MACHINE?

It’s a machine made to efficiently and securely convert between two currencies: ILS and JOD, automatically in both directions.

What We Offer?

- Fast and secure 24/7 self-service currency exchange (JOD ↔ ILS)
- live bank rates
- AI-driven banknote verification
- user-friendly website and a digital wallet to help you track your conversions

WHAT MAKES US DIFFERNT

useing AI tools into our machine to identify and recognize the type of entered currency with a 95% precision rate for both currencies.

This approach overcome traditional methods that rely on magnetic sensors and other sensor stages.

AutoXchange

What is the problem?

- Rate Manipulation

Exchange offices apply fees leading to unfair or inconsistent payouts.

- Availability

offices are restricted by business hours and unavailable on holidays or weekends.

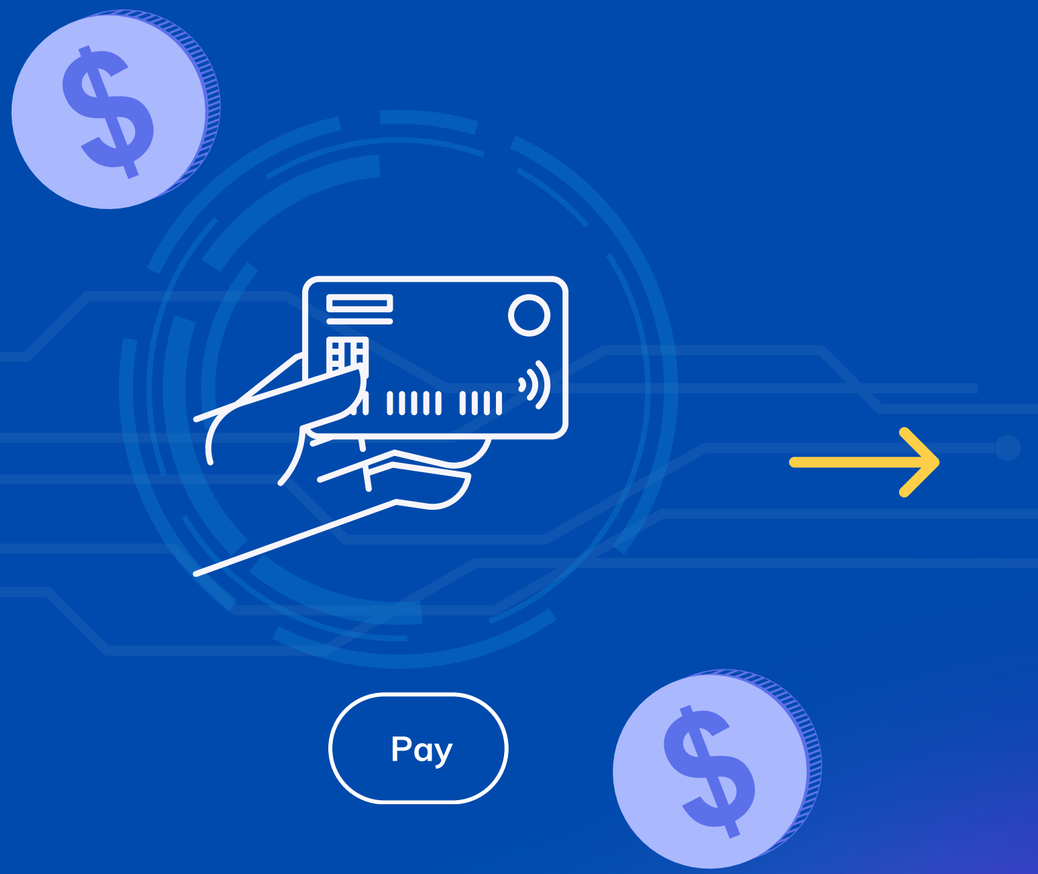
- Conversion Errors

Human handling lead to increase in the error rate due to miscounting or miscommunication.

- Security Risks

Manual handling may expose user to counterfeit notes, scams, or even theft during or after the transaction.

Our Solutions..



- **Scam & Manipulation Prevention**

Live exchange rates are fetched from trusted banking APIs this ensure real-time, fair conversions with no room for manipulation.

- **24/7 Automated Operation**

The machine runs continuously without the need for staff, providing service any time.

- **Fully Automated AI System**

currency recognition and transactions are handled by machine using AI and automation which eliminate human error in counting and conversion.

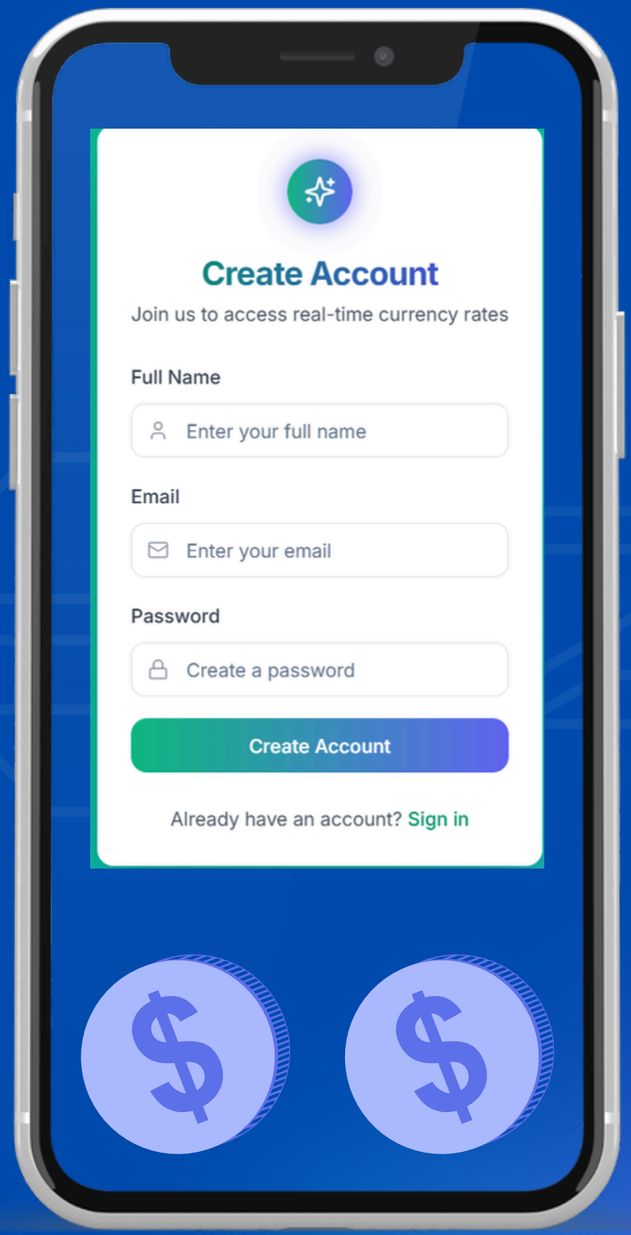
- **Secure Authentication & Detection**

RFID card verification and controlled AI-based banknote validation protect users from fraud, counterfeit money, and unauthorized use.

User-Friendly Interfaces

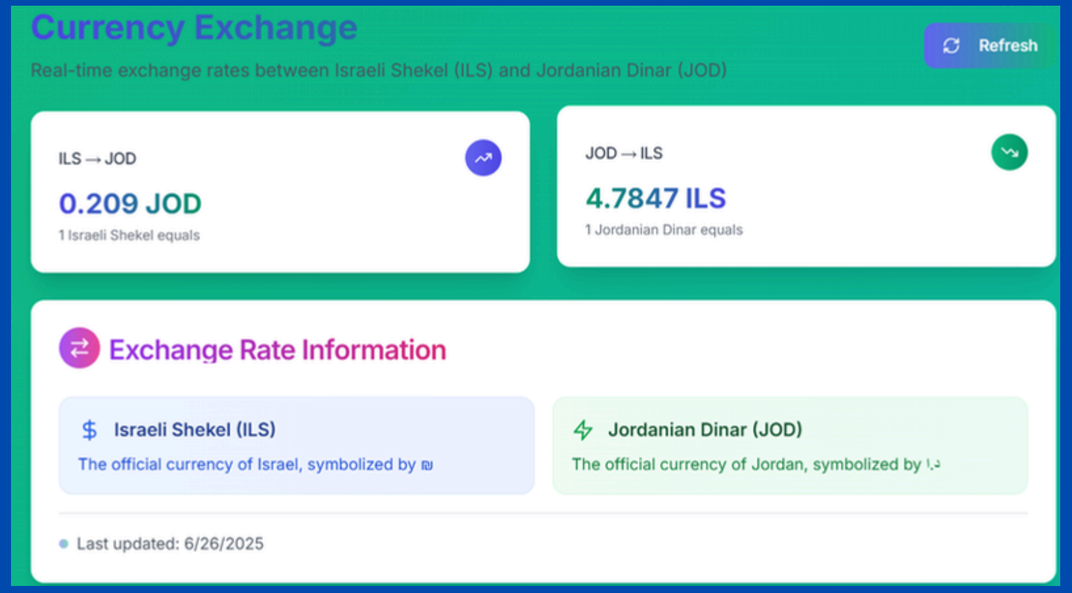
we offer a user-friendly website that allows users to:

- Track their personal wallet,
- View their transaction history, and
- Stay updated with the latest real-time exchange rates.
- Keep any remaining change (fraction part) in their wallet for future use.



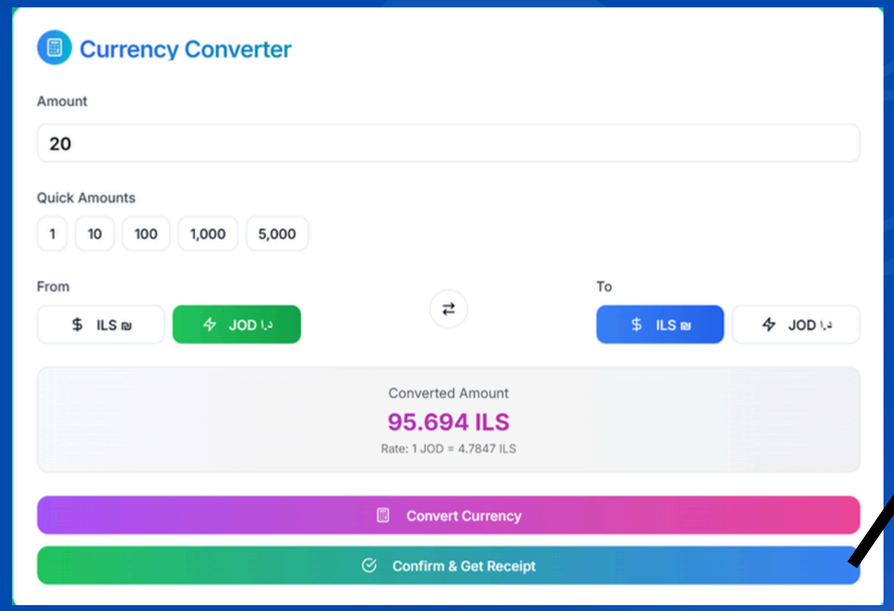
AutoXchange

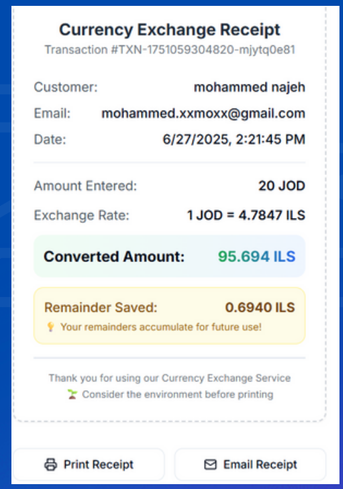
Rate Dashboard



User-Friendly Interfaces

Converter Dashboard



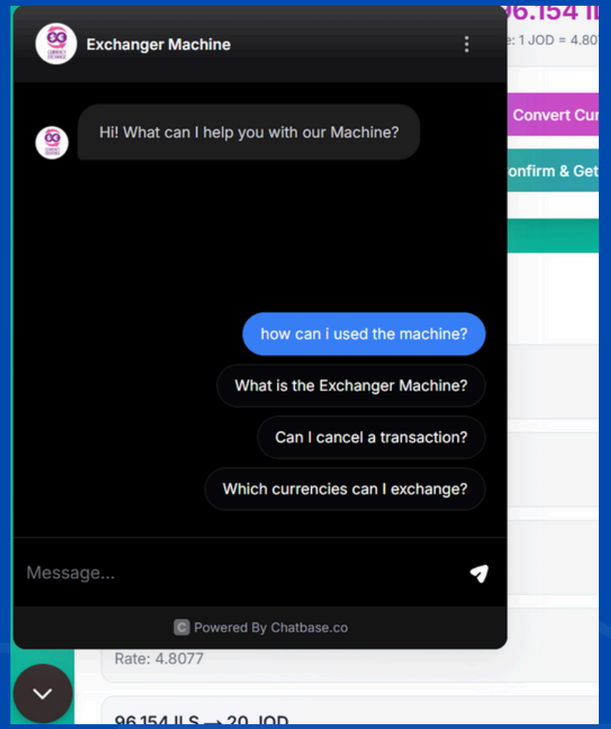


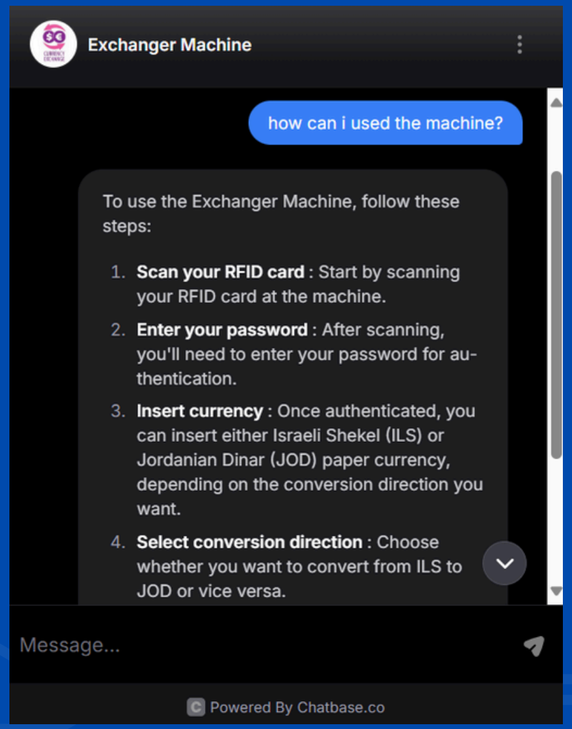
AutoXchange

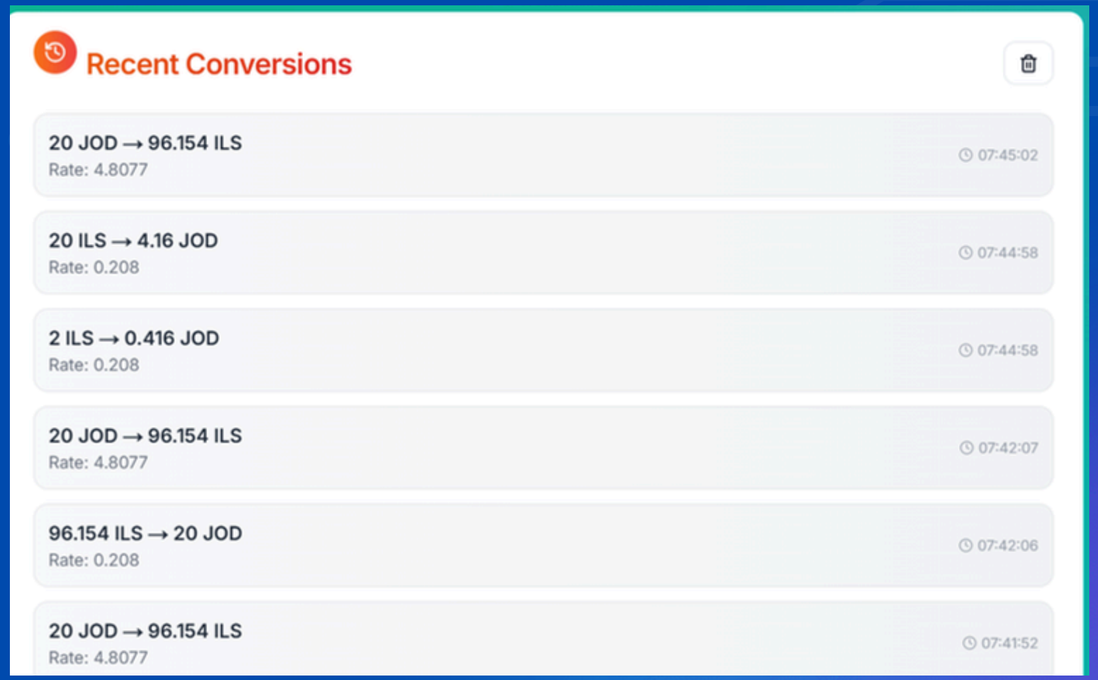
ChateBot

User-Friendly Interfaces

Recent Conversions







AutoXchange

Technical Part

This section explains the core technology behind AutoXchange

Key Points:

- AI Model for Currency Detection
- Hardware Components
- Authentication Features
- How the Machine Works

Input phase (banknote insertion)

Output part (Banknotes slotes)

AI Model

- Detects banknote type and value
- Trained on 10,000+ images for accurate recognition
- Uses Convolutional Neural Networks (CNNs) for image classification

AI MODEL VERSIONS

we trained our model using only 2,500 images in total.
As a result, we faced several issues, such as:

- A high error rate in detection.
- Inaccurate recognition of some banknotes.
-

training with 5,000 images.
This led to better performance, including:

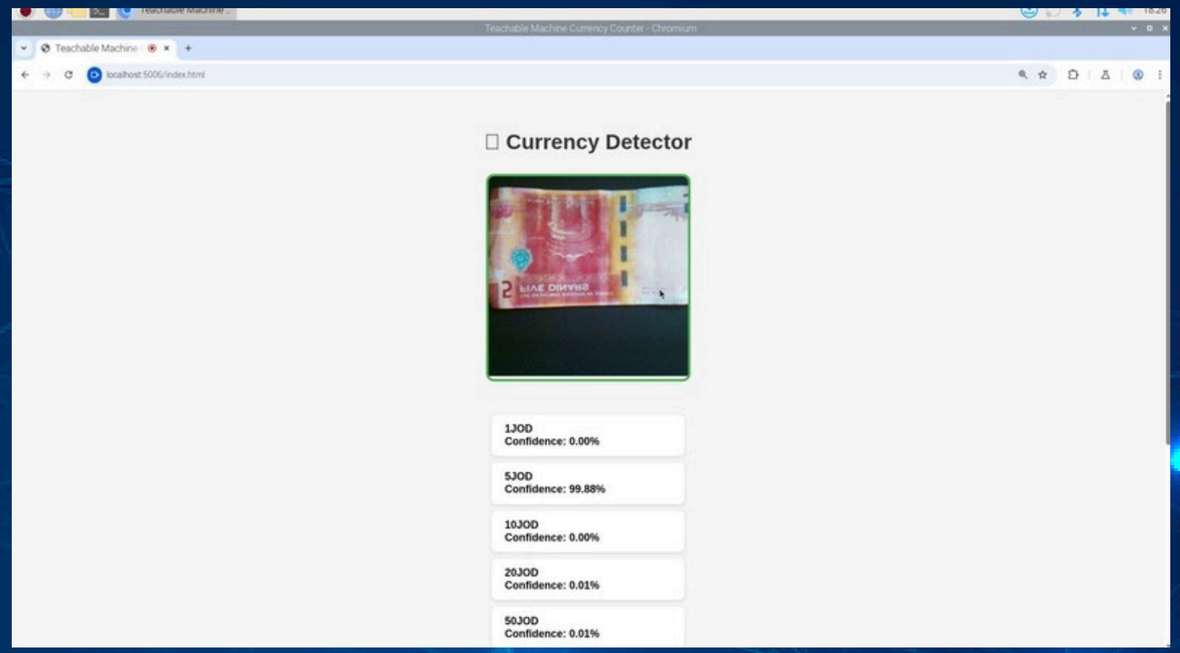
- Improved recognition accuracy.
- More reliable detection of different banknotes.
- Achieved an accuracy rate of 70% to 80% in real-world tests.

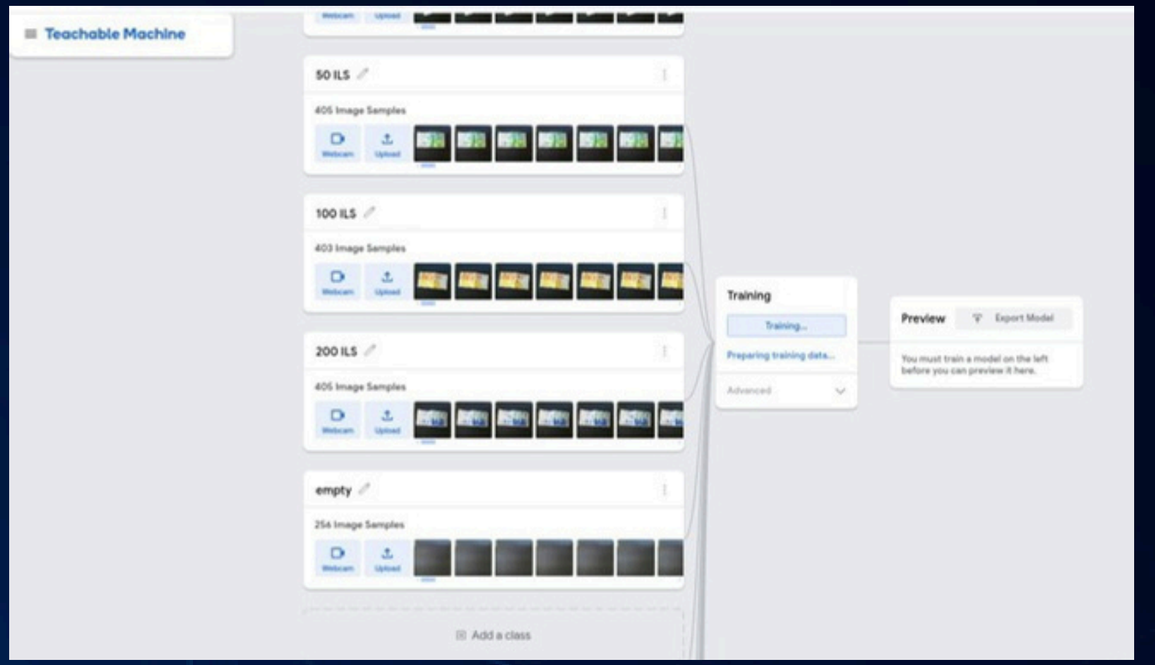
we trained the model with 10,000 images, resulting in:

- Significantly higher accuracy in detection with 95+% rate
- More consistent and reliable recognition across different angels and positions .

AI Model

- **Here we Entering 5JOD and our model detect it with rate of 99.88% accuracy.**





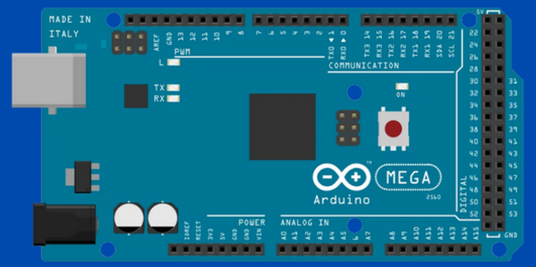
- **Here, we train our AI model with 10,000 images, and each class utilizes 1,000 in**

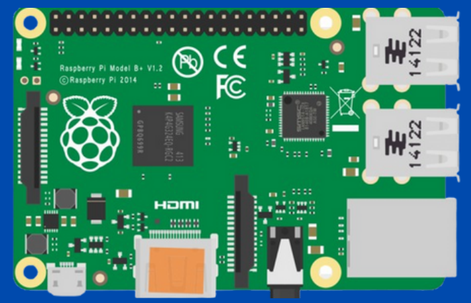
- **different positions and angles fixed light enviroment**

Hardware component

- L298N
- RFID Card
- A4988
- NEMA17 (e.g., 17HS4401)
- DC Motor (e.g., 775 Motor)
- Raspberry Pi 4 Model B
- Arduino Mega 2560
- Raspberry Pi Camera Module
- LCD ,Keypad

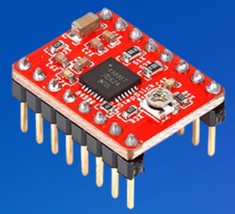
Microcontrollers

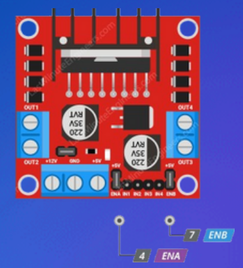




raspberry pi camera and RFID card

motors and drivers





component connection

The camera detect the type of the entered banknote and gives it value to the rasberry with the help of the AI model

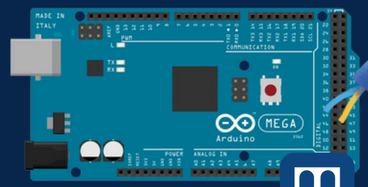
data

input

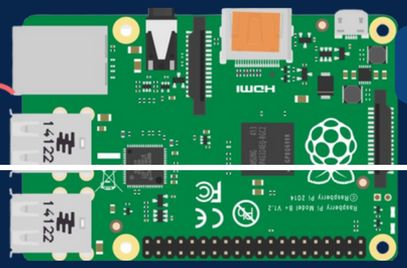
1

Arduino 1: Display the converted Amount and Manage Banknote Storage and other featuers

2



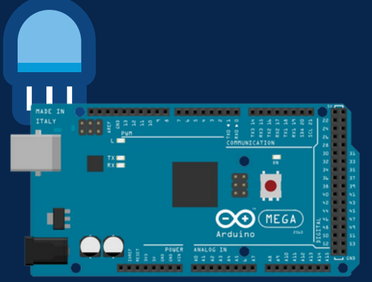
serial



The Raspberry Pi converts the Banknote amount by multiplying the value with rate and then sends it to the first Arduino

serial

3



output

Arduino2: handle the output amount by useing some mathematical equations for which slot to select for dispensing banknotes and handle the suction mechanism

AutoXchange

Security Features

Ensuring Trust and Confidence

To protect users and their data, our machine is designed with strong security features .

- **Keeps all wallet information encrypted in database**
- **Provides each user with a personal RFID card**
- **a unique passwords is used in the website to ensure multiple level of securtity**

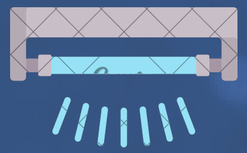
this Allows users to safely and privately access their accounts

AutoXchange

System Flowchart

SYSTEM LIMITATION

Only one coin module (1 ILS)



No UV/magnetic counterfeit detection

Vacuum pickup has occasional failures

No Currency Level Monitoring

Future Enhancement

Add more coin modules (5 & 10 ILS)

Improve vacuum system

Add ATM-like deposit/withdrawal functionality

Future Enhancement

Add counterfeit detection sensors

Add coin input support

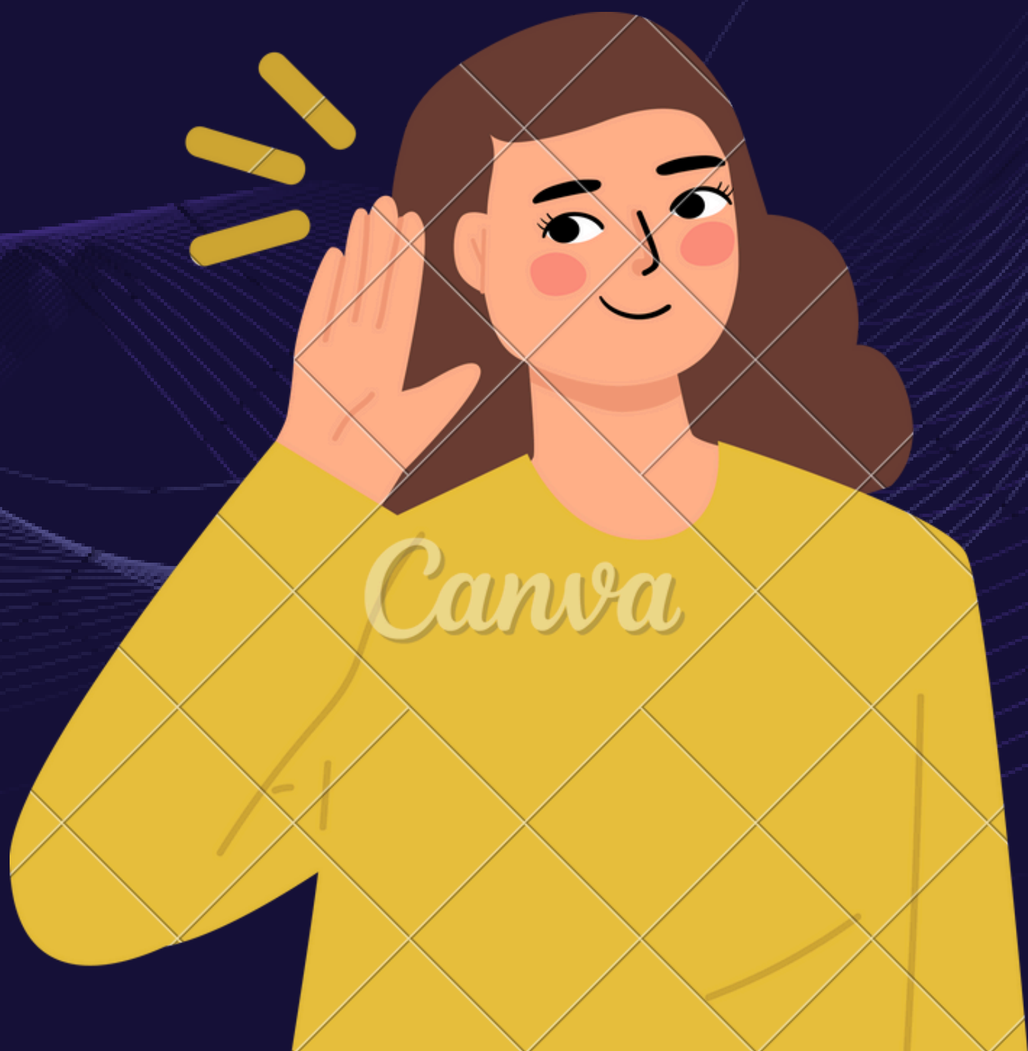
Rate caching when offline

Future Enhancement

make it suitable for people with disabilities

integrate smart sensors to monitor the remaining levels of both coins and banknotes

Q & A



Thanks for giving US your time !