



Flow Bangladesh

Modern Factories

Powered by Flow Bangladesh

@FlowBangladesh



Intro

Short Brief:

We are a complete IoT and blockchain based solution for modern factories for the next generation. We automate factories and provide IoT based solutions

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01

Challenges

Why are traditional factories failing?

A.

Most factories lack the support of supply chain tracking systems that lead to improper warehouse management and customers also can't trace the authenticity of a product



Solution

How are we solving it?

A. CargOn

We are providing supply chain tracking for products across the platform that allows for product validation. We have divided the supply chain into 5 phases :

1. Production
2. Distribution
3. Warehouse
4. Retail
5. Consumer



Challenges

Why are traditional factories failing?

B.

Most factories don't have a secure personnel tracking system often leading to break-ins and potential threats



Solution

How are we solving it?

B. FlowBD-Chain

We are providing blockchain based solutions for tracking workers along the premises for better security

- RFID Tracking System

The blockchain has been built from scratch to suit the Bangladeshi industry without using any cryptocurrency.



03

Challenges

Why are traditional factories failing?

C.

Most factories don't have automation across the board. This leads to damage and accidents occurring frequently



Solution

How are we solving it?

C. IoT Products

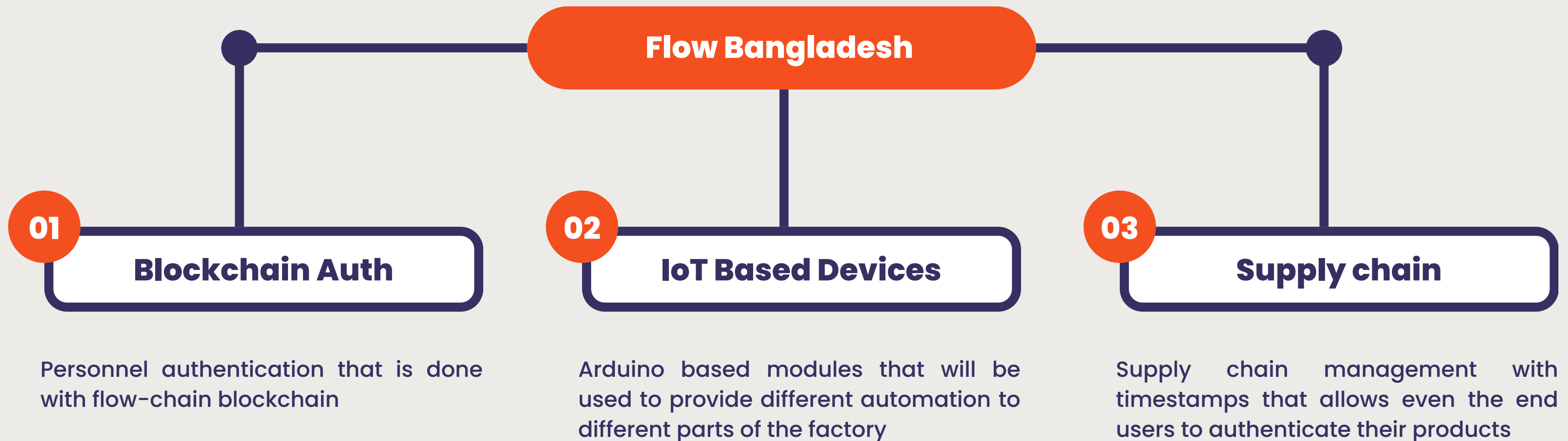
We are providing IoT based solutions to automate different aspect of a factory to modernize and simplify the work process. Initially we plan on releasing 3 lines of products :

- 1.RFID Validation Module
- 2.Fire Safety Module
- 3.Factory Automation Module

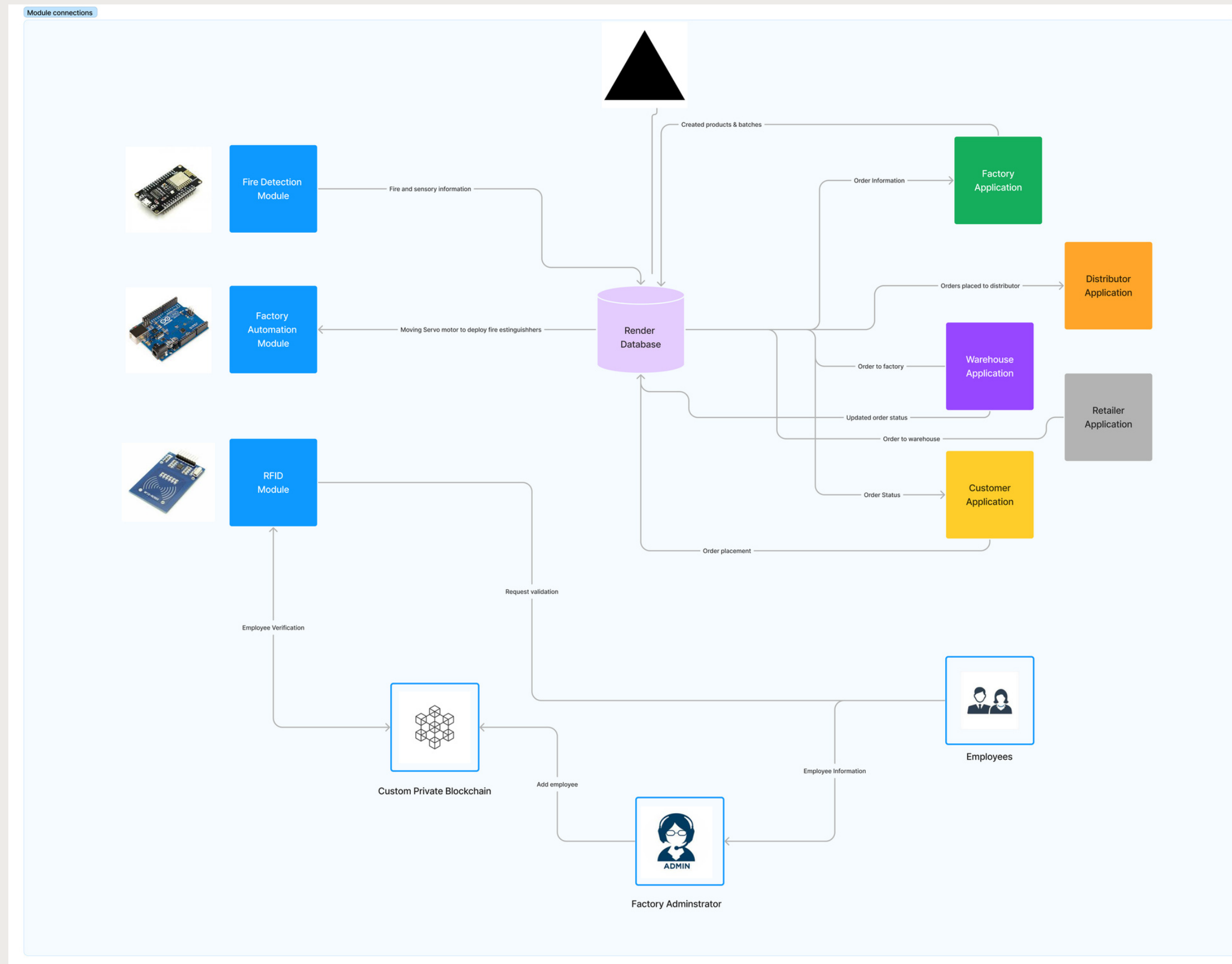


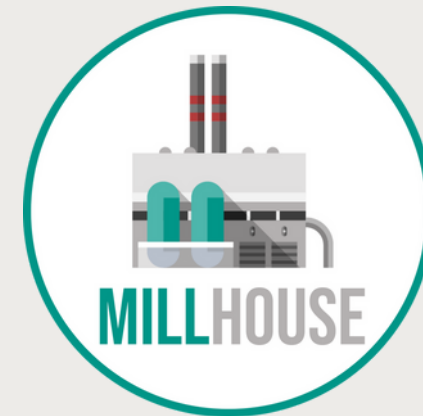
Solution Strategy

Our Plan for the Future



Architecture





MillHouse

Supply Chain

<https://cargonproduction.web.app/>

Order Management Page

MillHouse

Home Orders Distributors Products Inventory Add New Batch Factory Information Account Details Logout

Order Management

Total Orders
6

Orders Today
6

Orders Fulfilled
6

Order #	Date & Time	Estimated Delivery	Status	Action
Order # 23	28 Jan 2023 , 03:01	Esitmated Delivery on 28 Jan	Status :ASSIGNED	GET DETAILS
Order # 26	28 Jan 2023 , 03:01	Esitmated Delivery on 28 Jan	Status :ASSIGNED	GET DETAILS
Order # 34	28 Jan 2023 , 03:01	Esitmated Delivery on 28 Jan	Status :PENDING	GET DETAILS
Order # 38	28 Jan 2023 , 03:01	Esitmated Delivery on 28 Jan	Status :PENDING	GET DETAILS
Order # 41	28 Jan 2023 , 03:01	Esitmated Delivery on 28 Jan	Status :PENDING	GET DETAILS

Filters

Sort By: [Dropdown]
Sort Direction: [Dropdown]

Price range: Lower Bound [Input] Upper Bound [Input]

Search by distributor: [Input: Distributor Name]
Search by wholesaler: [Input: Wholesaler Name]
Search by date: [Input: mm/dd/yyyy]

APPLY FILTERS

Distributor List Page

MillHouse

Home

- Homepage
- Orders
- Distributors**
- Products
- Inventory
- + Add New Batch
- Factory Information

Account Details
Logout

Distributors

Total Distributors
1

29
Distributor ID

Jaid Monwar
Dhaka

Filters

Sort By

Sort Direction

Price range

Lower Bound Upper Bound

Search by distributor

Search by wholesaler

Search by date

APPLY FILTERS

Product Management Page

MillHouse

Settings 4 2 M

- Homepage
- Orders
- Distributors
- Products**
- Inventory
- Add New Batch
- Factory Information

Product Management


+ CREATE NEW PRODUCT

1 Total generics


1 Total Brand Names

1 Total Products

Search by name



ACE Syrup
Paracetamol
Syrup
500mg
Unit Price : ₺ 4



Entacid Tablet
Entacid
Tablet
500mg
Unit Price : ₺ 5

Filters

Sort By

Sort Direction

Price range

Lower Bound Upper Bound

Search by distributor

Distributor Name

Search by wholesaler

Wholesaler Name

Search by date

mm/dd/yyyy

APPLY FILTERS

- Account Details
- Logout

Product Details Page

< Product Details



ACE Syrup
Paracetamol
500mg
Square
Unit Price : 4 BDT

EDIT PRODUCT

DELETE PRODUCT

Indications

Paracetamol is indicated for fever, common cold and influenza, headache, toothache, earache, bodyache, myalgia, neuralgia, dysmenorrhoea, sprains, colic pain, back pain, post-operative pain, postpartum pain, inflammatory pain and post vaccination pain in children. It is also indicated for rheumatic & osteoarthritic pain and stiffness of joints.

Pharmacology

Paracetamol has analgesic and antipyretic properties with weak an

Dosage

1-2 tablets every 4 to 6 hours up to a maximum of 4 gm (8 tablets) daily.

Adminstration

It dissolves up to five times faster than standard Paracetamol tablets. It is a fast acting and safe analgesic with marked antipyretic property. It is specially suitable for patients who, for any reason, can not tolerate aspirin or other analgesics.

Product Edit Page

< Product Details

Update product

1 "Basic Information" 2 "Details" 3 "Confirmation" X

Name
ACE

Variant
Syrup

Intensity
500mg

Brand
Square

Image
<https://i.postimg.cc/OjPyMY16/165575565862b0d38a09054.jpg>

Category
Fever

Chemical Name
Paracetamol

Unit Price
4

Best Before
mm/dd/yyyy

CANCEL NEXT

Batch Creation Page

MillHouse

Settings 4 2 M

- Homepage
- Orders
- Distributors
- Products
- Inventory
- + Add New Batch**
- Factory Information



Account Details

Logout

Create New Batch

+ CREATE NEW BATCH

Recent Batches

Product	Batch ID	Product ID	Remaining Quantity	Initial Quantity	
	22 Batch ID	21 Product ID	95 Current	100 Initial	▼
	31 Batch ID	21 Product ID	400 Current	400 Initial	▼

Batch Create Modal

The screenshot displays the MillHouse application interface. On the left, a sidebar menu includes: Homepage, Orders, Distributors, Products, Inventory, **Add New Batch**, Factory Information, Account Details, and Logout. The main content area features an illustration of a factory production line with robotic arms and workers. A modal window titled "Add a new batch" is open on the right, containing the following form fields:

- Product: Entacid
- Quantity: 900
- Production Date: 01/28/2023
- Expiry Date: 04/28/2023

At the bottom of the modal are two buttons: CANCEL and CREATE.

Inventory Management Page

MillHouse

Settings 4 2 M

- Homepage
- Orders
- Distributors
- Products
- Inventory**
- + Add New Batch
- Factory Information

Inventory Management 9

In-Stock Products
2

Production Today
495

Total inventory Count
495

21 Product ID	ACE Paracetamol	495 In Stock	500 Total
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Filters

Sort By

Sort Direction

Price range

Lower Bound Upper Bound

Search by distributor

Search by wholesaler

Search by date

APPLY FILTERS

Account Details

Logout

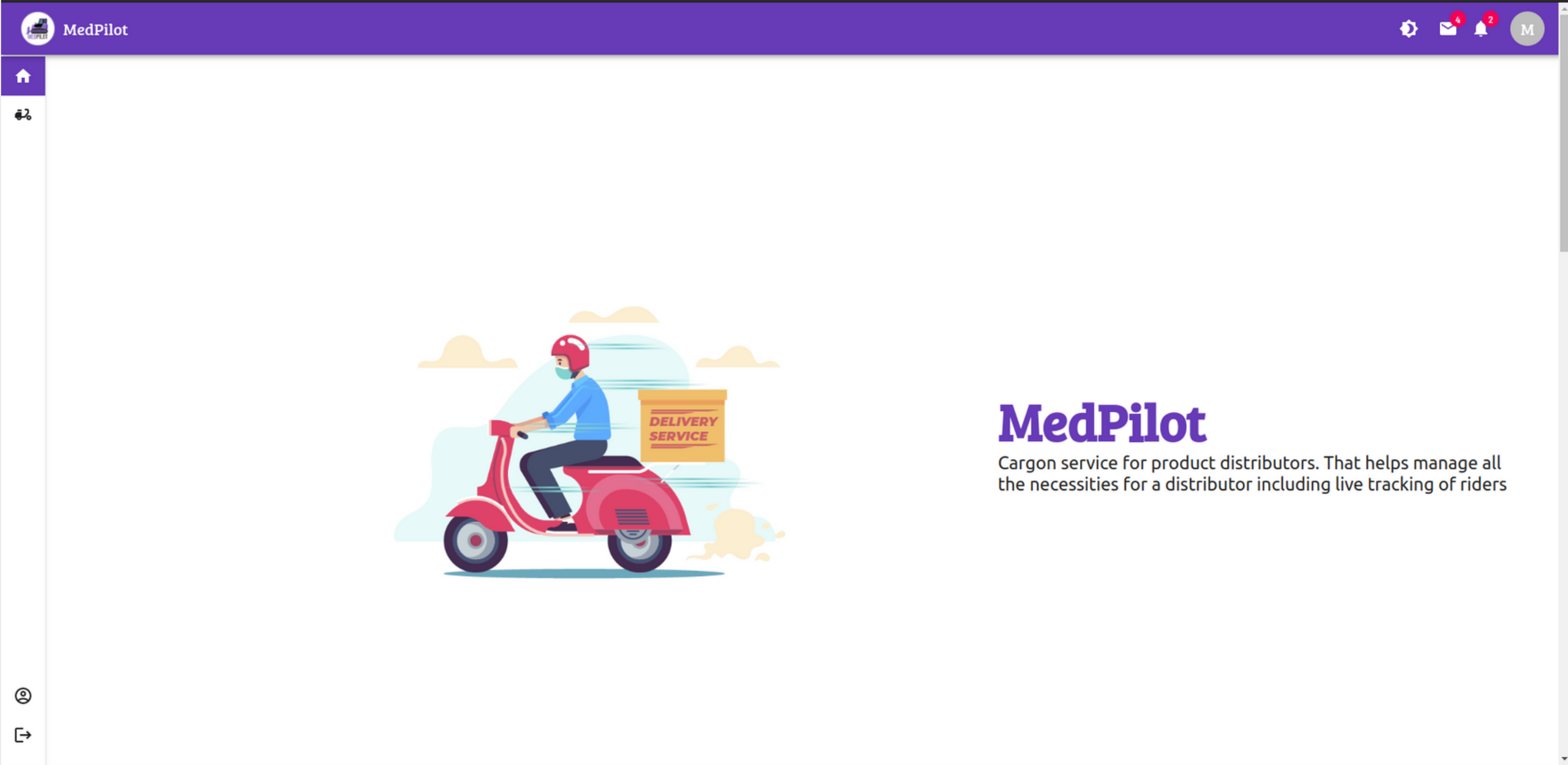


MedPilot

Supply Chain

<https://cargon-medpilot.web.app/home>

MedPilot HomePage



Order Management Page

The screenshot displays the MedPilot Order Management interface. At the top left, the MedPilot logo is visible. The top right corner contains navigation icons: a gear for settings, an envelope for messages, a bell for notifications, and a profile icon labeled 'M'. The main heading 'Order Management' is centered at the top in a purple font. Below this, two order cards are shown. Each card contains the following information: 'Order # 23' and 'Order # 26', the date and time '28 Jan 2023 , 03:01', the text 'Esitmated Delivery on 28 Jan' (note the typo), and the status 'Status :ASSIGNED'. A QR code is positioned to the right of each order card. The interface includes a sidebar on the left with a home icon and a purple button with a plus sign, and a bottom-left corner with a refresh icon and a share icon.

Order #	Date & Time	Estimated Delivery	Status
Order # 23	28 Jan 2023 , 03:01	Esitmated Delivery on 28 Jan	ASSIGNED
Order # 26	28 Jan 2023 , 03:01	Esitmated Delivery on 28 Jan	ASSIGNED

Order Management Action

The screenshot displays the MedPilot Order Management interface. At the top left, the MedPilot logo is visible. The top right corner contains navigation icons for settings, messages (with a red notification bubble), a bell (with a red notification bubble), and a user profile icon labeled 'M'. A sidebar on the left includes a home icon and a selected icon with a red notification bubble. The main content area is titled 'Order Management' in purple. It features two order cards. The first card, for Order # 23, shows the date '28 Jan 2023, 03:01', an estimated delivery date of '28 Jan', and a status of 'ASSIGNED'. It includes a QR code and a table with one row: 'ACE' with a price of 'BDT 12' and a quantity of '3'. Below the table, it says 'Delivering to:' and has a purple button with a checkmark and the text 'MARK AS DELIVERED'. The second card, for Order # 26, shows the same date and status, and also includes a QR code. At the bottom left of the interface, there are icons for a refresh/circular arrow and a share/arrow icon.

MedPilot

Order Management

Order # 23
28 Jan 2023 , 03:01
Esitmated Delivery on 28 Jan
Status :**ASSIGNED**

ACE	Price : BDT 12	Qty : 3
-----	----------------	---------

Delivering to :

✓ MARK AS DELIVERED

Order # 26
28 Jan 2023 , 03:01
Esitmated Delivery on 28 Jan
Status :**ASSIGNED**







Order Status Page

< Order Details

Order # 23
28 Jan 2023 , 03:01
Estimated Delivery on 28 Jan

ACE
Price : BDT
Qty : 3

Track Order

-   **Order Placed**
We have received the order
ON Jan 27, 2023
-   **Order Assigned**
We have assigned the order to a designated distributor
ON Jan 27, 2023
-   **Order Delivered**
Our product has reached the customer

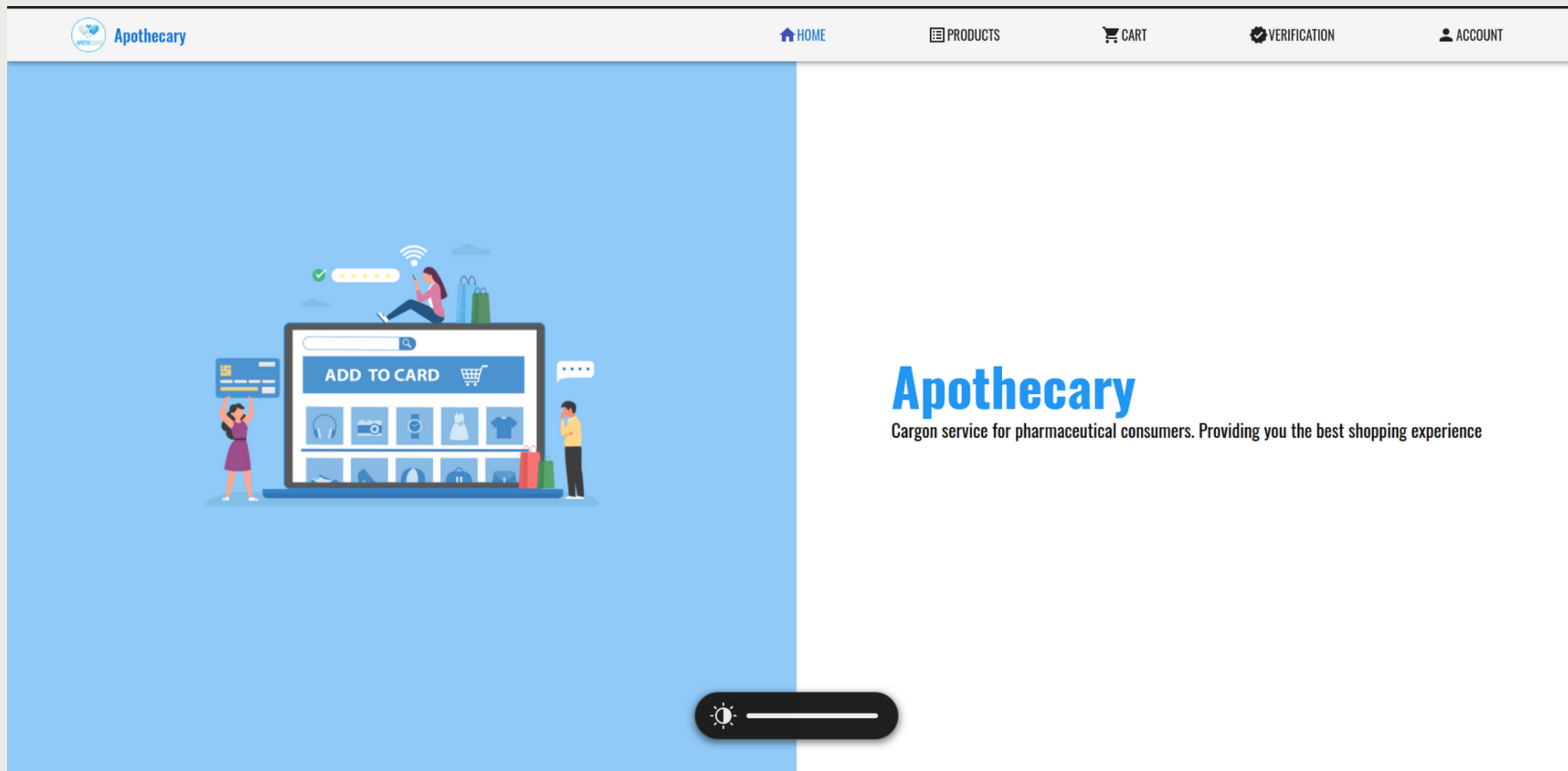


Apothecary

Supply Chain

<https://cargon-apothecary.web.app/>

Apothecary HomePage



Factory List Page

Partner Factories

Choose from any one of our partner factories and start shopping



Factory #2
name
A

SEE PRODUCTS



Factory #3
name
A

SEE PRODUCTS



Factory #7
asf
sfdadsf

SEE PRODUCTS



Factory #9
Square Pharmaceuticals
Gazipur,Dhaka

SEE PRODUCTS

Factory Products Page

GO BACK

Shopping Page

Add the products you want to the cart and directly buy them

 Search by name

SEARCH



ACE Syrup
Paracetamol
500mg

₹ 4

ADD





Entacid Tablet
Entacid
500mg

₹ 5



ADD

Cart Page

 **Apothecary** [HOME](#) [PRODUCTS](#) [CART](#) [VERIFICATION](#) [ACCOUNT](#)

 **Cart Page**
Confirm your order request

Your Cart

	ACE Paracetamol	2 Count	8 Price	
---	---------------------------	-------------------	-------------------	--

Total Price : 8 Taka

Your Address

ORDER

Previous Orders Page

Verify by putting in the Order ID

Order ID

SEARCH

Verify previous orders from this device

26

Order ID



34

Order ID



38

Order ID



41

Order ID



Order Details Page



HOME

PRODUCTS

CART







VERIFICATION

ACCOUNT

Order # 26
28 Jan 2023 , 03:01
Esitimated Delivery on 28 Jan

ACE
Price : BDT
Qty : 2

Track Order

-   **Order Placed**
We have received the order
ON Jan 27, 2023
-   **Order Assigned**
We have assigned the order to a designated distributor
ON Jan 27, 2023
-   **Order Delivered**
Our product has reached the customer



Flow-Chain

Blockchain Employee Validation

Blockchain Architecture

```
5 class Block {
6     constructor({ timestamp, lastHash, hash, data, nonce, difficulty }) {
7         // {arguments} - helps to not follow order of arguments
8         this.timestamp = timestamp;
9         this.lastHash = lastHash;
10        this.hash = hash;
11        this.data = data;
12        this.nonce = nonce;
13        this.difficulty = difficulty;
14    }
15
```

Structure of a Block

Blockchain Testing

```
PASS wallet/index.test.js (6.245s)
PASS blockchain/block.test.js
PASS blockchain/index.test.js
PASS wallet/transaction.test.js (8.087s)
PASS util/crypto-hash.test.js
PASS wallet/transaction-pool.test.js (10.555s)
```

```
Test Suites: 6 passed, 6 total
```

```
Tests: 69 passed, 69 total
```


```
Snapshots: 0 total
```

```
Time: 11.445s
```



Key Features

Flow-chain

- **Built from scratch - javascript**
 - **No Cryptocurrency needed for transactions**
 - **Implemented OOP concept**
 - **Relies on Proof of Work consensus**
 - **Handles all corner cases smoothly**
- 

Security Competitive Analysis

Flow-chain	Ethereum	CyberSecurity
No cryptocurrency needed ✓	Cryptocurrency needed ✗	No cryptocurrency needed ✓
Reliable ✓	Reliable ✓	Not Reliable ✗
Affordable ✓	Expensive ✗	Affordable ✓

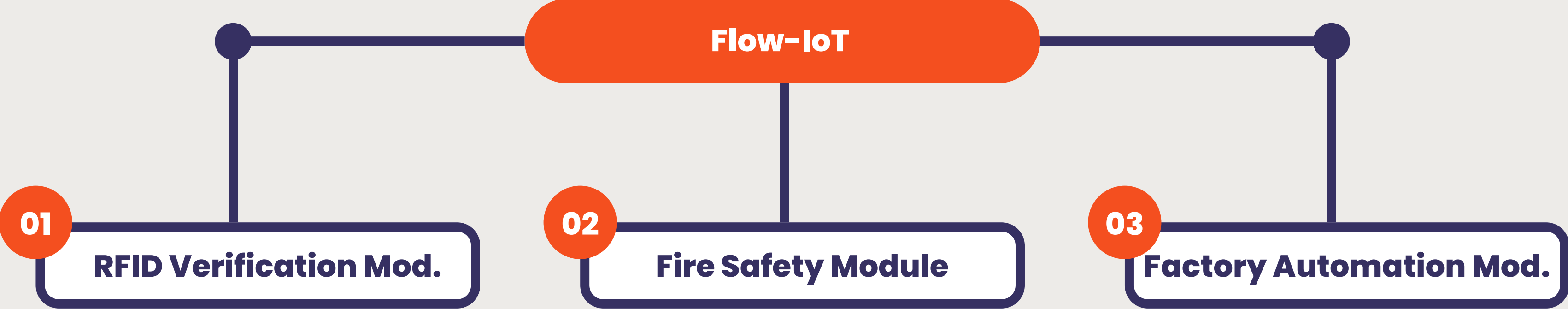


Flow-IoT

IoT Device Family

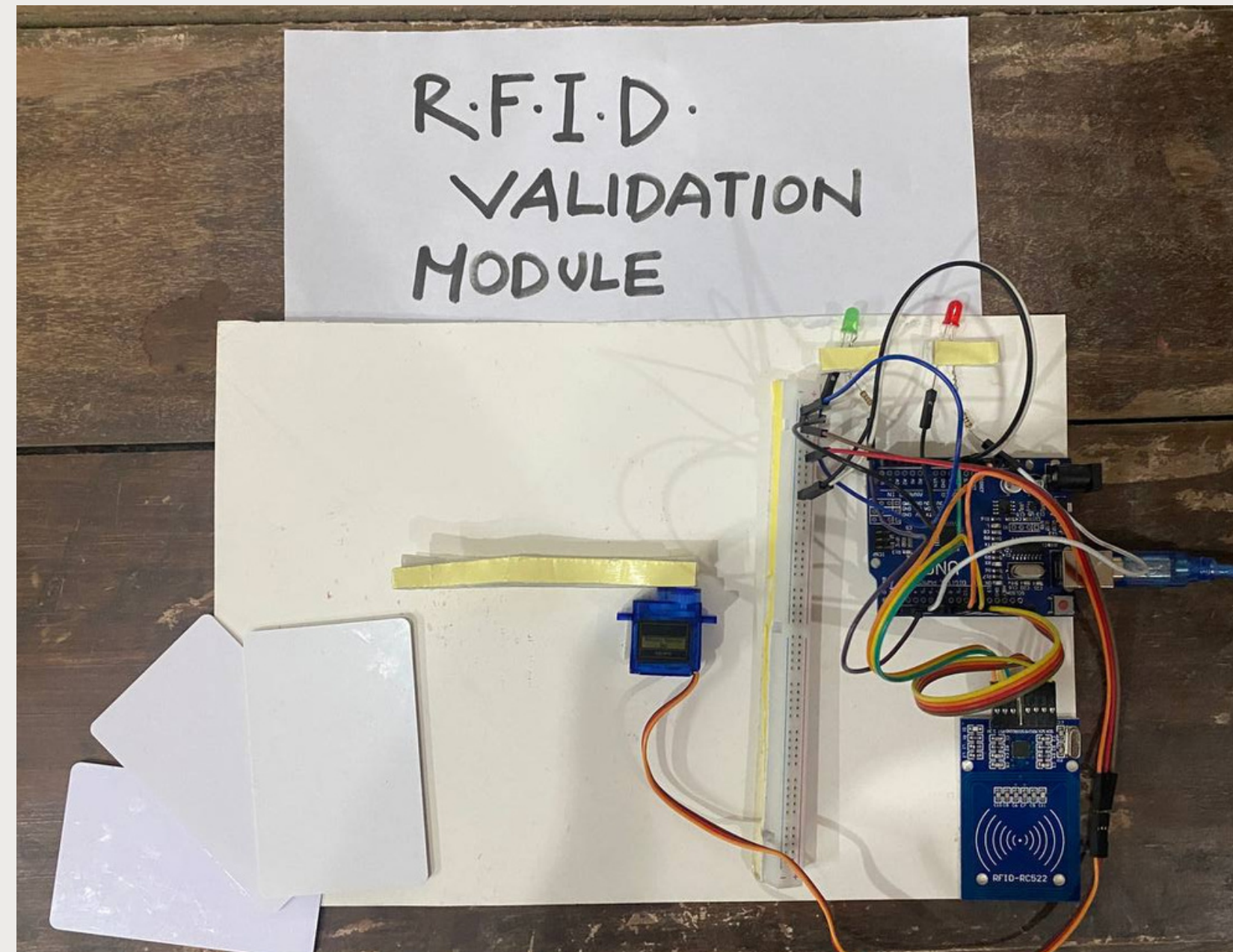
Flow-IoT

Our IoT Solutions



RFID Validation Module

IoT Devices



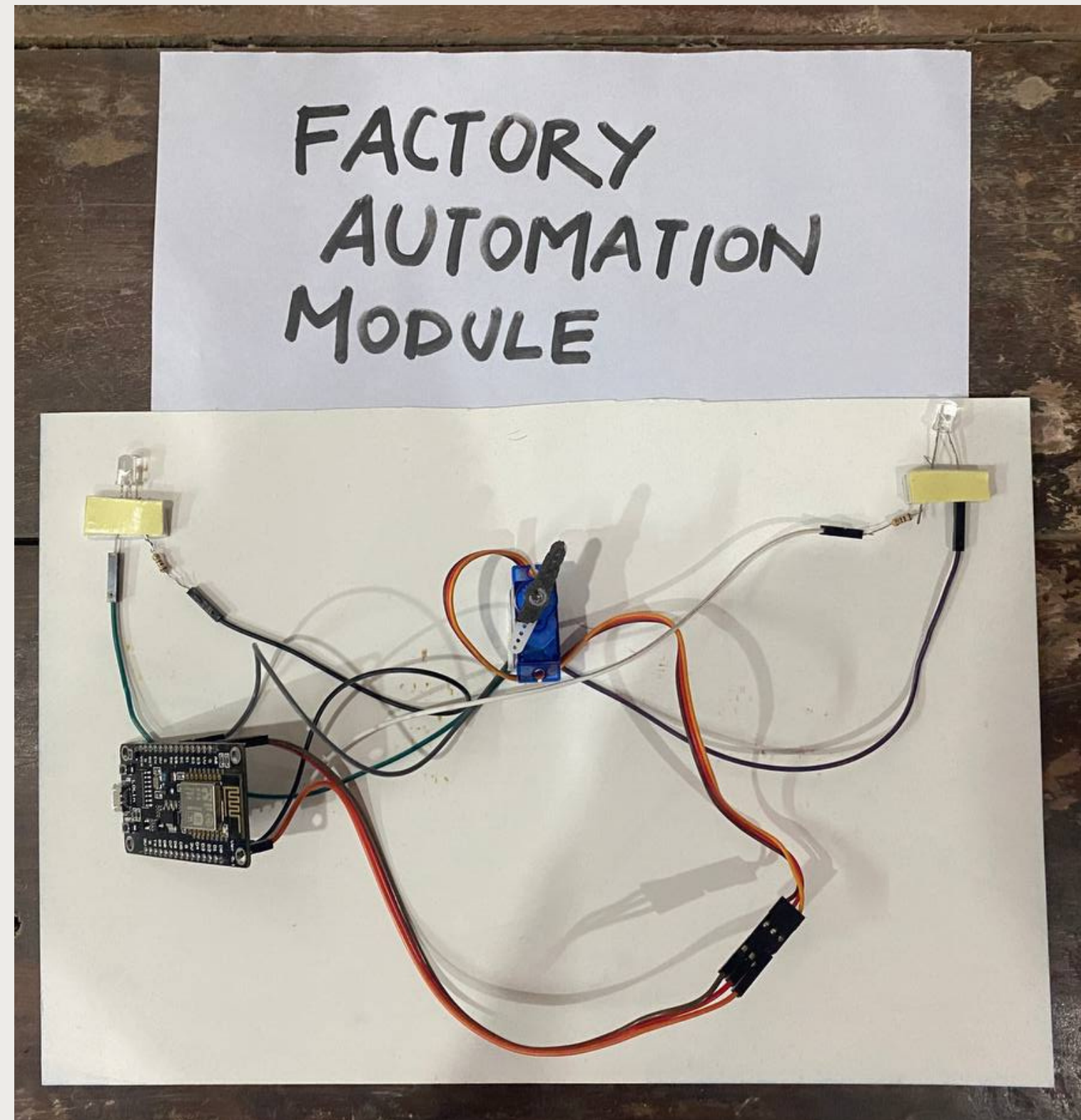
Fire Safety Module

IoT Devices



Factory Automation Module

IoT Devices





IoT Demonstration Link

https://youtube.com/playlist?list=PLVXDXOQI_dOEourAThZ30zPnf5y9_3ovx





Tech Stack

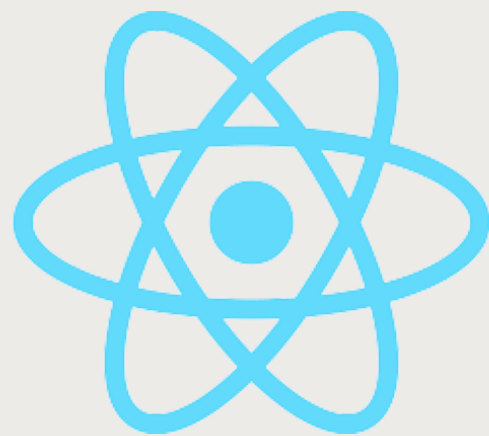
Supply Chain

Back End



Java Springboot

Front End



React

UI Library



Material UI





Tech Stack

Supply Chain

Hosting(Backend)



Firebase Hosting

Hosting(Frontend)



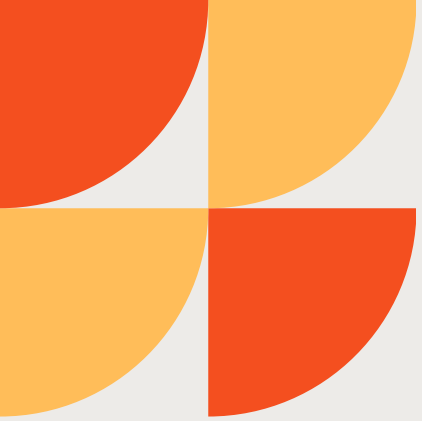
Railway

Database



Render





Tech Stack

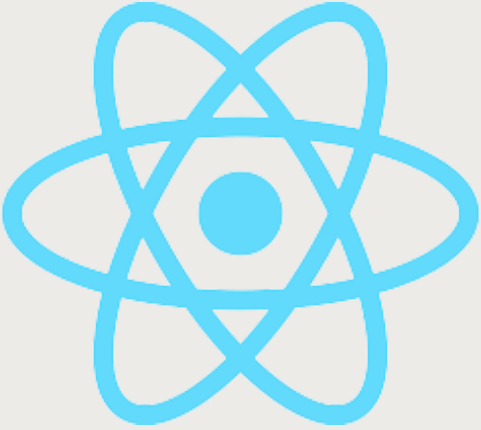
Blockchain Deployment

Backend



Node.js

Front End



React





Tech Stack

IoT Deployment

IoT IDE



Arduino IDE

IoT Deployment



Arduino Cloud





Modules Used

IoT Deployment


Microcontrollers

- Arduino UNO
- NodeMCU V3

Sensors

- DHT11 Temp & Hum Sensor
- Flame Detector
- Methane, Ethane , Butane Gas Detector
- MFRC522

Other Devices

- Servo Motors
 - LCD Display
 - Buzzer
 - LEDs
- 

Target Audience

For Supply Chain Solution

Pharmaceutical Industries

247

Registered companies

~450

Factories countrywide



Target Audience

For Blockchain Based Employee Validation

Large Factories & Finance Industries

500

Large companies

~46,000

Companies nationwide



Business Models

1. Transaction Based Model

We will use this model for our Supply Chain based solutions

2. Subscription Based Model

We will use this model for our Blockchain and Supply Chain based solutions

3. Package Based Model

We will use this model for our IoT based solutions



Supply Chain Pricing



Flow-chain Pricing

(blockchain)

Small Factories

BDT
50,000-1,00,000/mo

Medium Factories

BDT
75,000-2,00,000/mo

Large Factories

BDT
5,00,000-10,00,000/mo

IoT Module Pricing

Package 1

Single Module

BDT
200-400/set

Package 2

Two Modules

BDT
350-700/set

Package 3

Three Modules

BDT
500-1000/set



Profit Margin

Supply Chain

~120%

Flow-chain

~125%

IoT Modules

~80%



Blockchain

**Industry
4.0**

**Supply
Chain**

IoT

Team

Flow Bangladesh Team



Salman Sayeed

CS Undergrad, BUET



**Jaid Monwar
Chowdhury**

CS Undergrad, BUET



Zarif Ikram

CS Undergrad, BUET



Thank You



www.reallygreatsite.com