



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

Follow Us

@FlowBangladesh



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



02

# 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 :

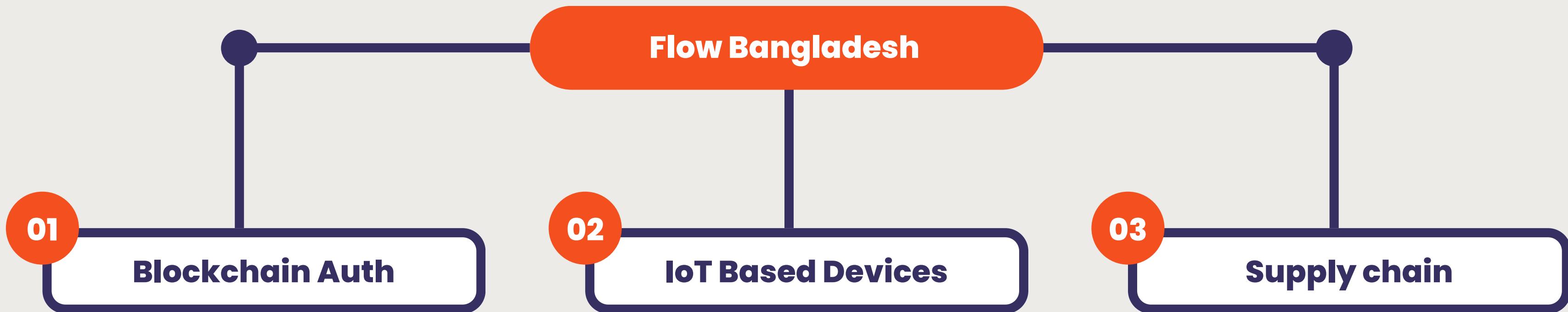
1. RFID Validation Module
2. Fire Safety Module
3. Factory Automation Module





# Solution Strategy

## Our Plan for the Future

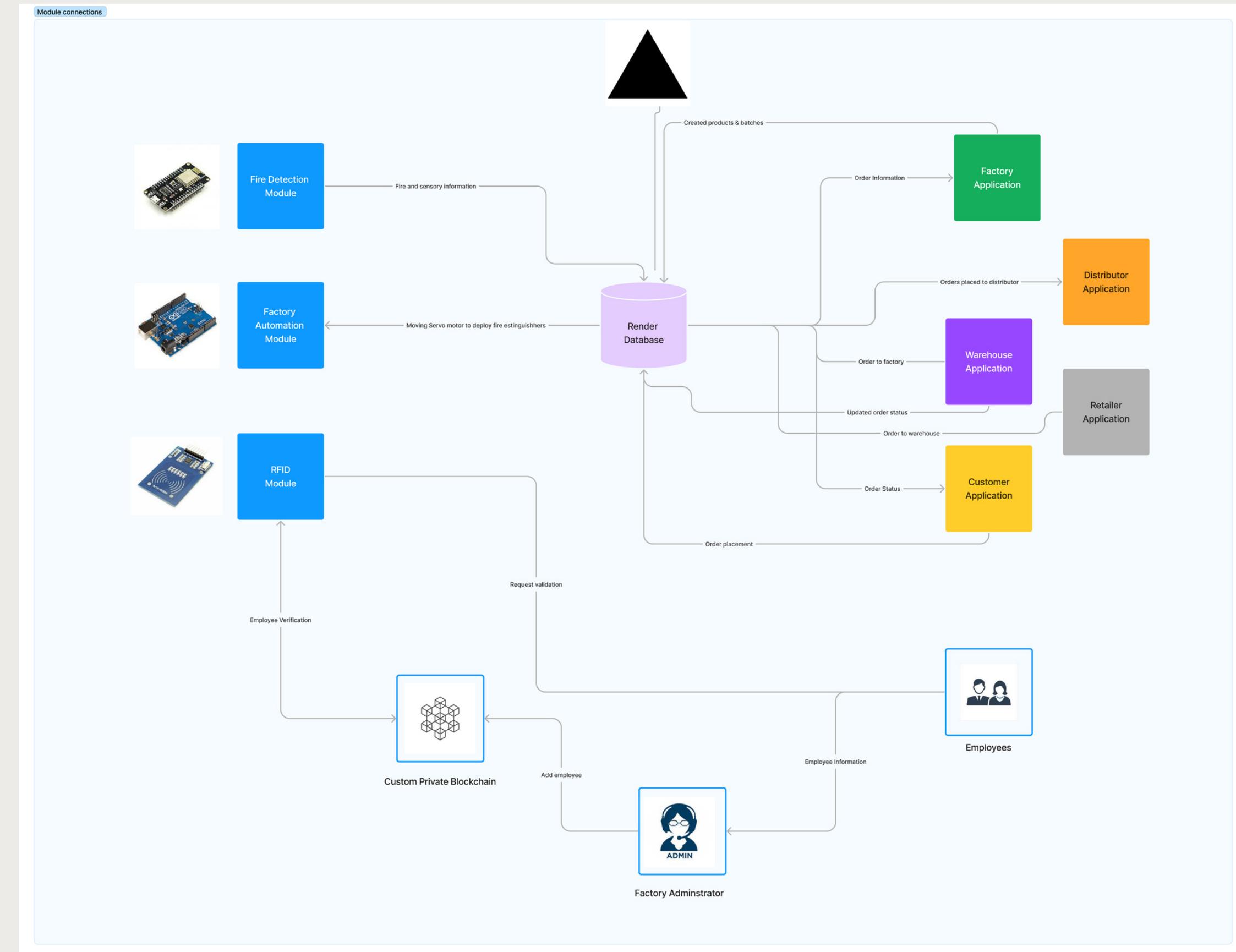


Personnel authentication that is done with flow-chain blockchain

Arduino based modules that will be used to provide different automation to different parts of the factory

Supply chain management with timestamps that allows even the end users to authenticate their products

# Architecture





# MillHouse

Supply Chain

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

# Order Management Page

 MillHouse

4 2 M

[Homepage](#) [Orders](#) [Distributors](#) [Products](#) [Inventory](#) [Add New Batch](#) [Factory Information](#) [Account Details](#) [Logout](#)

## Order Management

 Total Orders **6**

 Orders Today **6**

 Orders Fulfilled **6**

<b>Order # 23</b> 28 Jan 2023 , 03:01 Esitmated Delivery on 28 Jan	Status : <b>ASSIGNED</b> <a href="#">GET DETAILS</a>
<b>Order # 26</b> 28 Jan 2023 , 03:01 Esitmated Delivery on 28 Jan	Status : <b>ASSIGNED</b> <a href="#">GET DETAILS</a>
<b>Order # 34</b> 28 Jan 2023 , 03:01 Esitmated Delivery on 28 Jan	Status : <b>PENDING</b> <a href="#">GET DETAILS</a>
<b>Order # 38</b> 28 Jan 2023 , 03:01 Esitmated Delivery on 28 Jan	Status : <b>PENDING</b> <a href="#">GET DETAILS</a>
<b>Order # 41</b> 28 Jan 2023 , 03:01 Esitmated Delivery on 28 Jan	Status : <b>PENDING</b> <a href="#">GET DETAILS</a>

**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](#)

# Distributor List Page

MillHouse

- 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  
Distributor Name

Search by wholesaler  
Wholesaler Name

Search by date  
mm/dd/yyyy

**APPLY FILTERS**

# Product Management Page

MillHouse

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

+ CREATE NEW PRODUCT

1 Total generics

1 Total Brand Names

1 Total Products

Search by name

Ace®  
Paracetamol 500 mg  
SQUARE

ACE Syrup  
Paracetamol  
Syrup  
500mg  
Unit Price : ₹ 4

Entacid Tablet

Entacid  
Tablet  
500mg  
Unit Price : ₹ 5

Account Details

Logout

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

# 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.

### Administration

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 X

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

Name  
ACE

Variant  
Syrup

Intensity  
500mg

Brand  
Square

Image  
<https://i.postimg.cc/0jPyMY16/165575565862b0d38a09054.jpg>

Category  
Fever

Chemical Name  
Paracetamol

Unit Price  
4

Best Before  
mm/dd/yyyy

CANCEL NEXT

# Batch Creation Page

MillHouse

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

4 2 M

## 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 image shows a screenshot of a web-based application named 'MillHouse'. The main navigation bar at the top includes icons for settings, notifications (4), messages (2), and a user profile (M). The left sidebar contains links for Homepage, Orders, Distributors, Products, Inventory, Add New Batch (which is highlighted in green), and Factory Information. At the bottom of the sidebar are Account Details and Logout options. The central area features a large, stylized illustration of a factory floor with a conveyor belt, robotic arms, and workers. A modal window titled 'Add a new batch' is overlaid on the page. This modal includes fields for Product (set to 'Entacid'), Quantity (set to '900'), Production Date ('01/28/2023'), and Expiry Date ('04/28/2023'). It also has 'CANCEL' and 'CREATE' buttons at the bottom.

MillHouse

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

Add a new batch

Product: Entacid

Quantity: 900

Production Date: 01/28/2023

Expiry Date: 04/28/2023

CANCEL CREATE

# Inventory Management Page

MillHouse

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

Account Details

Logout

## Inventory Management 9

In-Stock Products: 2

Production Today: 495

Total inventory Count: 495

Product ID: 21, Product Name: ACE Paracetamol

In Stock: 495, Total: 500

**Filters**

Sort By:

Sort Direction:

Price range:  
Lower Bound:  Upper Bound:

Search by distributor:

Search by wholesaler:

Search by date:

**APPLY FILTERS**

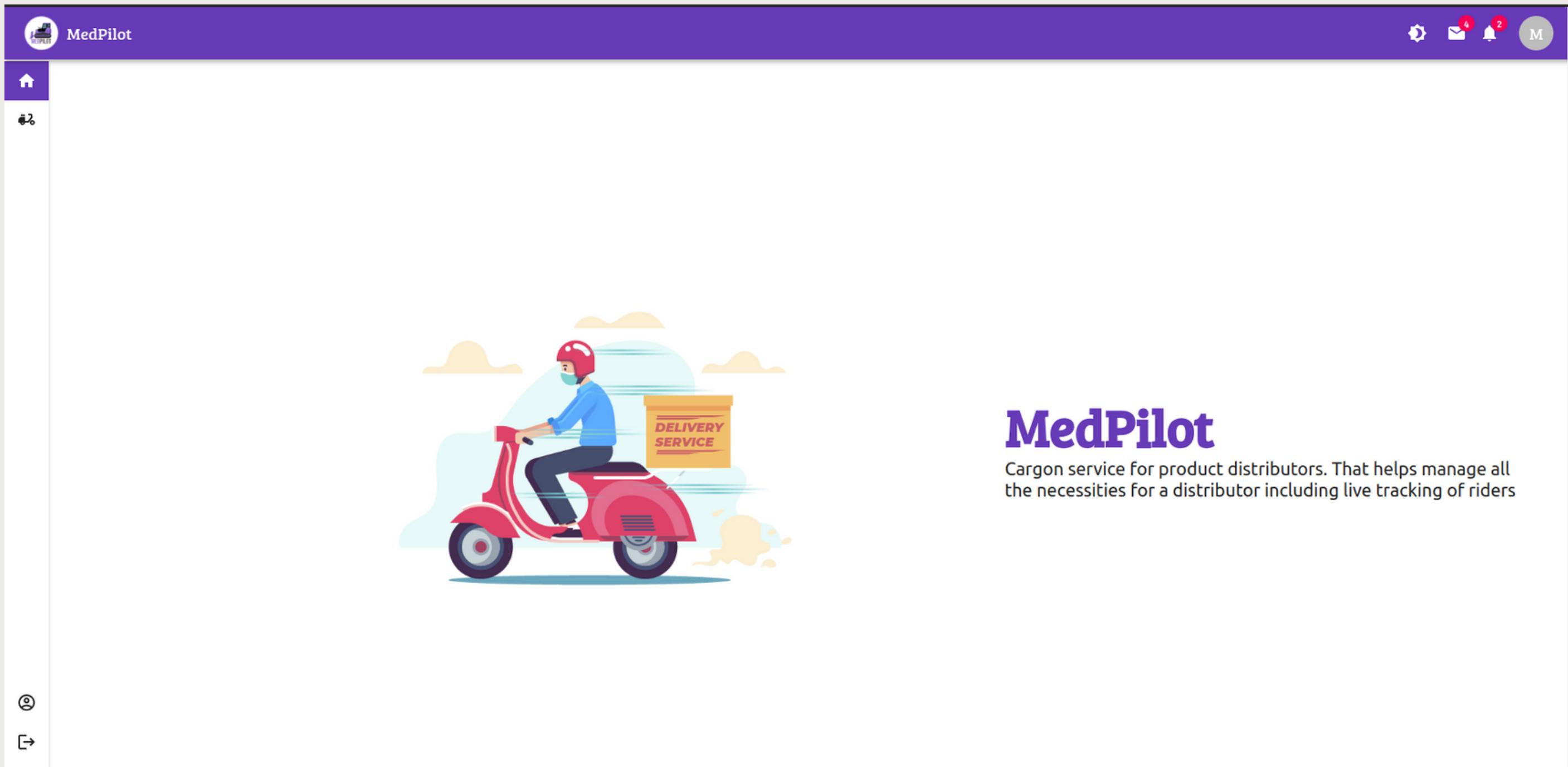


# MedPilot

Supply Chain

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

# MedPilot HomePage

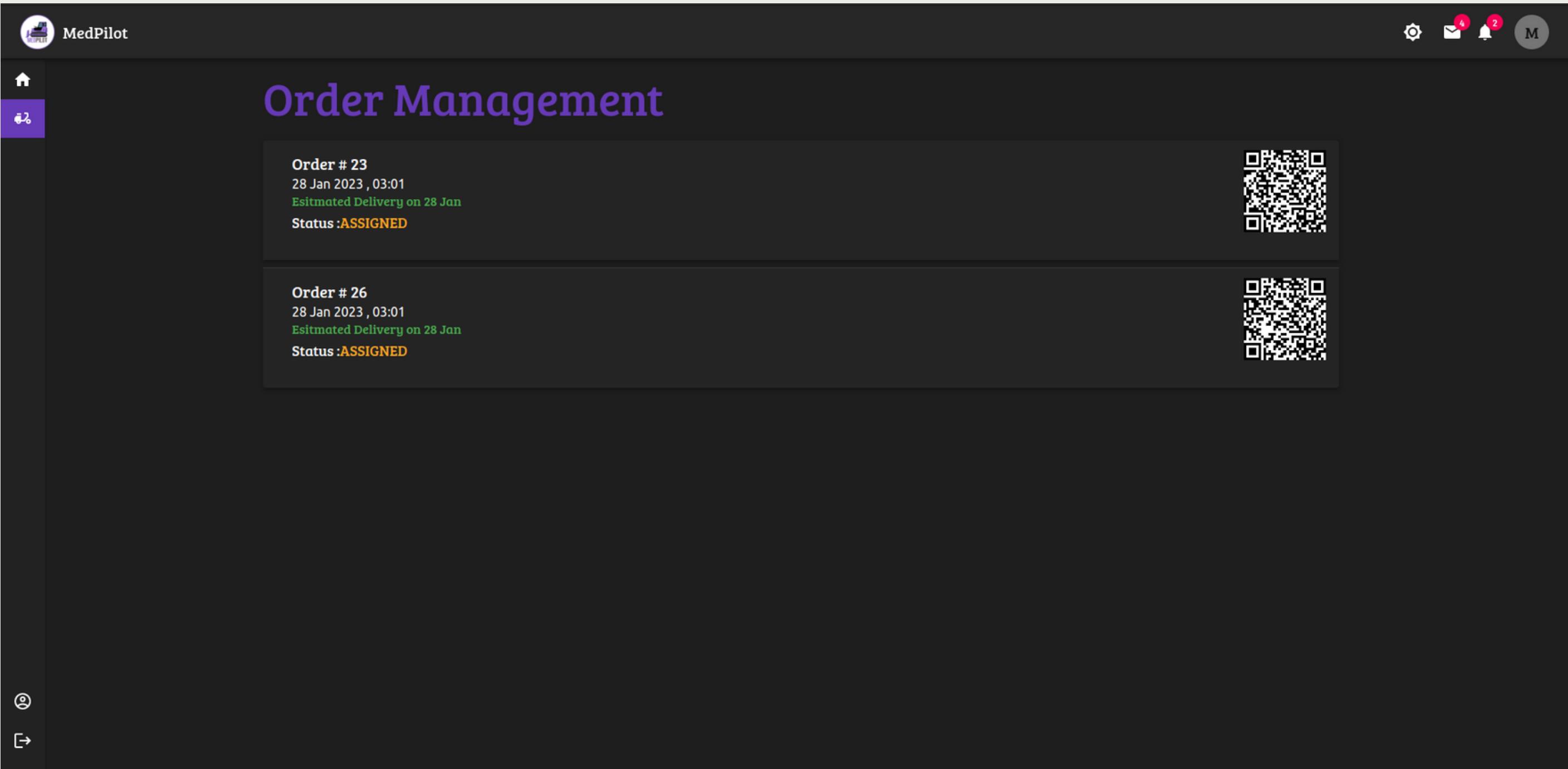


The image shows a screenshot of the MedPilot homepage. At the top is a purple header bar with the MedPilot logo on the left and a user menu on the right containing icons for settings, notifications (with 4), messages (with 2), and a profile (M). Below the header is a sidebar on the left with a house icon (Home), a gear icon (Settings), and two other icons. The main content area features a cartoon illustration of a delivery person wearing a red helmet and a blue shirt, riding a red scooter with a yellow "DELIVERY SERVICE" box attached to the back. The background of the main area has a light gray gradient with a subtle grid pattern. To the right of the illustration, the word "MedPilot" is written in a large, bold, purple font, followed by a smaller description: "Cargo service for product distributors. That helps manage all the necessities for a distributor including live tracking of riders".

MedPilot

Cargo service for product distributors. That helps manage all the necessities for a distributor including live tracking of riders

# Order Management Page



The screenshot shows the MedPilot Order Management Page. At the top left is the MedPilot logo. On the right are icons for settings, notifications (4), messages (2), and a user profile (M). A vertical sidebar on the left has icons for home, users (selected), and other functions. The main title "Order Management" is centered above two order cards.

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

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

QR codes are provided for each order.

# Order Management Action

The screenshot displays the MedPilot Order Management Action interface. At the top, there is a header bar with the MedPilot logo, a search bar, and various icons for settings, notifications, and user profile. Below the header, the main title "Order Management" is centered. The interface lists two orders:

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

Product: ACE  
Price : BDT 12  
Qty : 3

Delivering to :

MARK AS DELIVERED

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

On the left side of the main content area, there are navigation icons: a house icon, a circular arrow icon, and a right-pointing arrow icon. On the right side, there are decorative orange and yellow abstract shapes.

# Order Status Page

< Order Details

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

**ACE**  
Price : BDT  
Qty : 3

**Track Order**

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



# Apothecary

Supply Chain

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

# Apothecary HomePage

The image shows a screenshot of the Apothecary homepage. At the top, there is a navigation bar with the following items: a logo icon labeled "Apothecary", "HOME" (with a house icon), "PRODUCTS" (with a grid icon), "CART" (with a shopping cart icon), "VERIFICATION" (with a checkmark icon), and "ACCOUNT" (with a user icon). Below the navigation bar is a large blue section containing a digital illustration of a woman holding a credit card, a man standing next to a smartphone displaying a shopping app, and another person sitting on a cloud-like shape. The app screen shows a search bar, an "ADD TO CARD" button, and a grid of product thumbnails. To the right of this blue section, the word "Apothecary" is written in large blue letters, followed by the tagline "Cargo service for pharmaceutical consumers. Providing you the best shopping experience". At the bottom of the page, there is a dark footer bar with a light switch icon and a horizontal slider.

# Factory List Page

Apothecary

HOME PRODUCTS CART VERIFICATION ACCOUNT

## Partner Factories

Choose from any one of our partner factories and start shopping



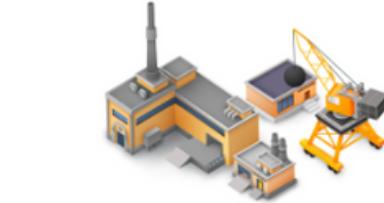
Factory #2  
name  
A  
[SEE PRODUCTS](#)



Factory #3  
name  
A  
[SEE PRODUCTS](#)



Factory #7  
asf  
sfdadsf  
[SEE PRODUCTS](#)



Factory #9  
Square Pharmaceuticals  
Gazipur,Dhaka  
[SEE PRODUCTS](#)

# Factory Products Page

Apothecary

HOME PRODUCTS CART VERIFICATION ACCOUNT

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 - 2 +



**Entacid** Tablet  
Entacid  
500mg

₺ 5

ADD - 0 +

# Cart Page

Apothecary

HOME PRODUCTS CART VERIFICATION ACCOUNT

Cart Page  
Confirm your order request

Your Cart

	ACE Paracetamol	2	8	
Total Price : 8 Taka		Count	Price	

Your Address

ORDER

# Previous Orders Page

Apothecary

HOME PRODUCTS CART VERIFICATION ACCOUNT

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

 Apothecary

HOME PRODUCTS CART VERIFICATION ACCOUNT

**Order # 26**  
28 Jan 2023, 03:01  
Estimated 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  
PASS  
PASS  
PASS  
PASS  
PASS

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

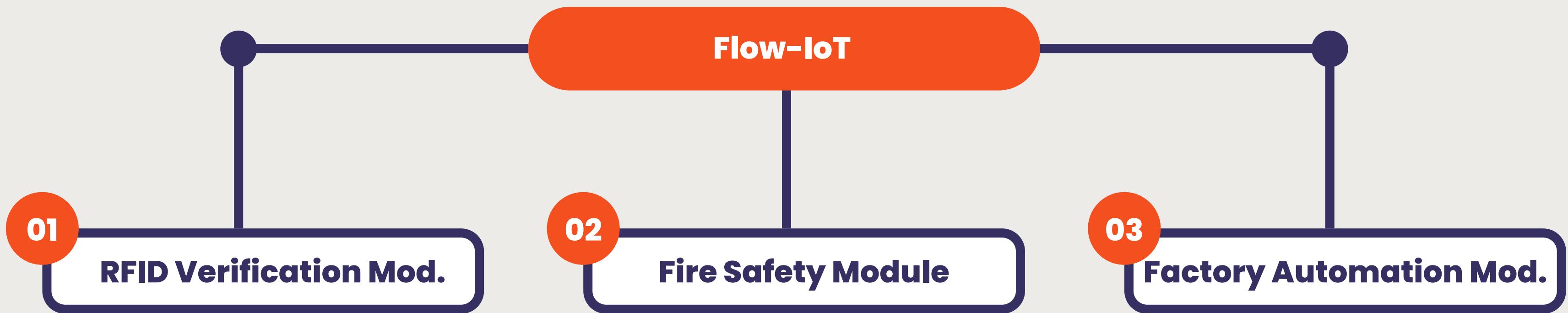


# Flow-IoT

**IoT Device Family**

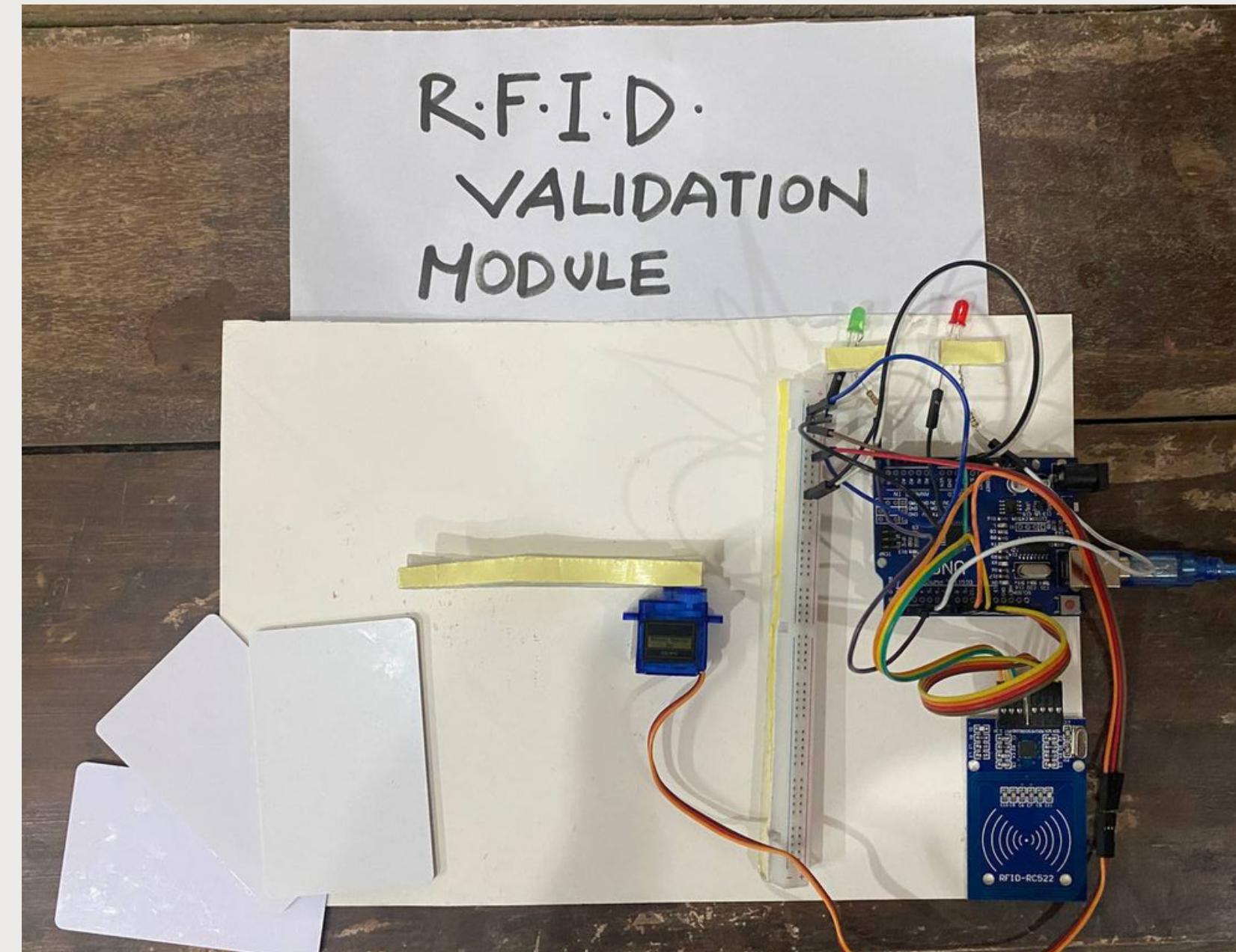
# Flow-IoT

## Our IoT Solutions



# RFID Validation Module

IoT Devices



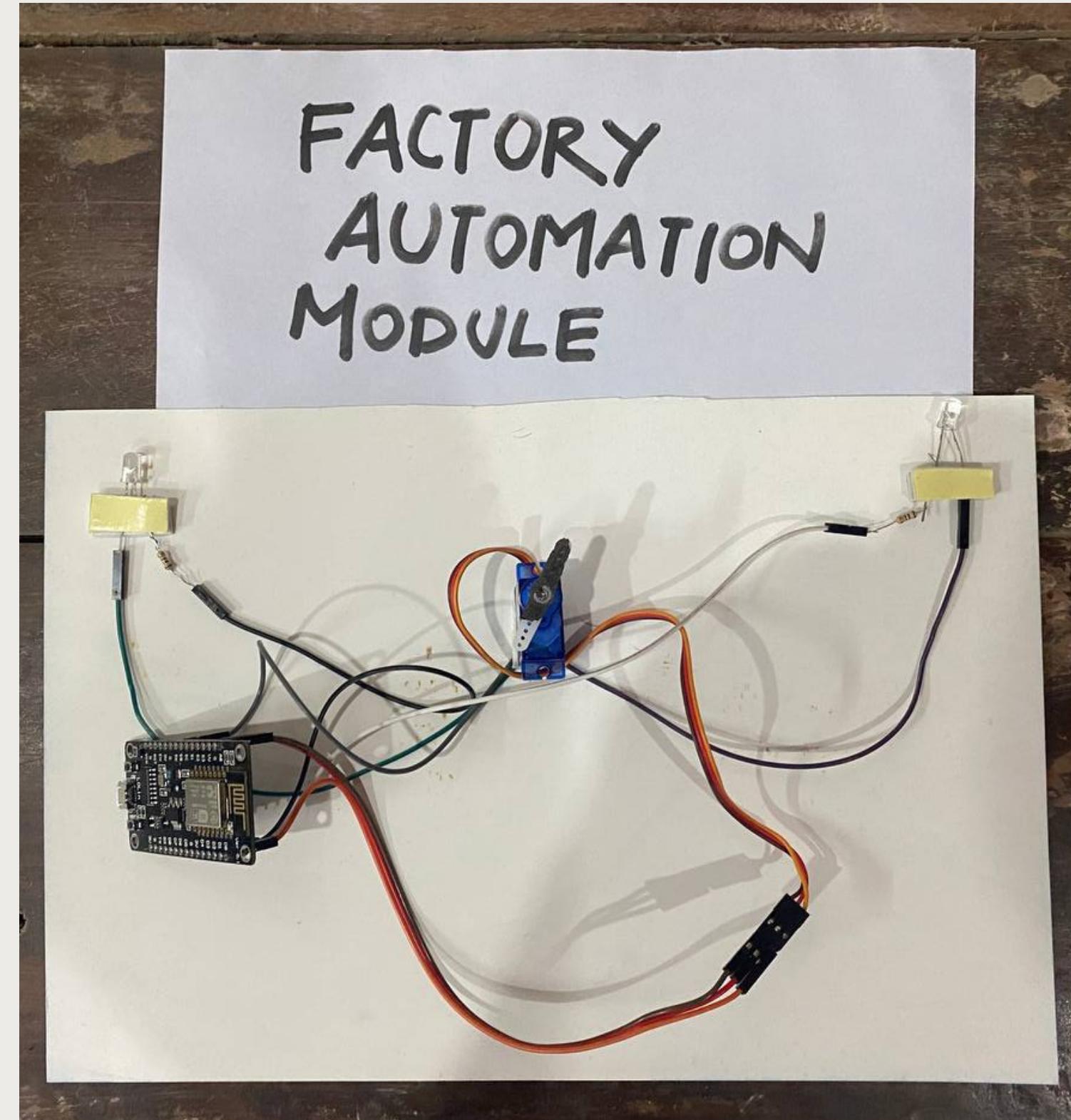
# Fire Safety Module

IoT Devices



# Factory Automation Module

IoT Devices



# IoT Demonstration Link

[https://youtube.com/playlist?list=PLVXDXOQI\\_dOEourATHZ30zPnf5y9\\_3ovx](https://youtube.com/playlist?list=PLVXDXOQI_dOEourATHZ30zPnf5y9_3ovx)





# Tech Stack

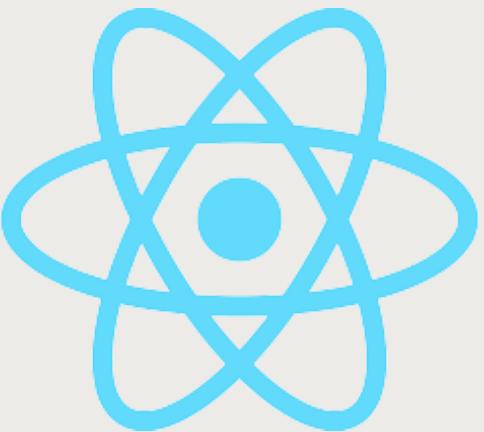
Supply Chain

## 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

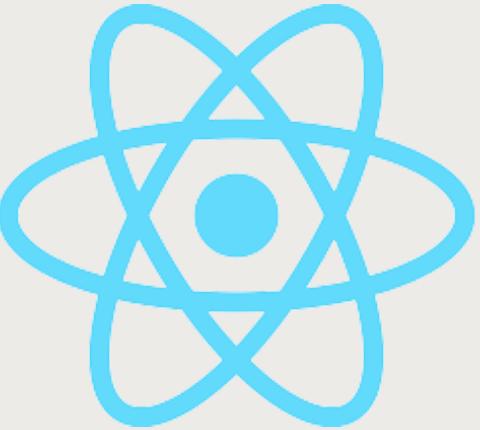
Blockchain Deployment

## Backend



Node.js

## Front End



React

# Tech Stack

IoT Deployment

## IoT IDE



Arduino IDE

## IoT Deployment



Arduino Cloud



# Modules Used

IoT Deployment

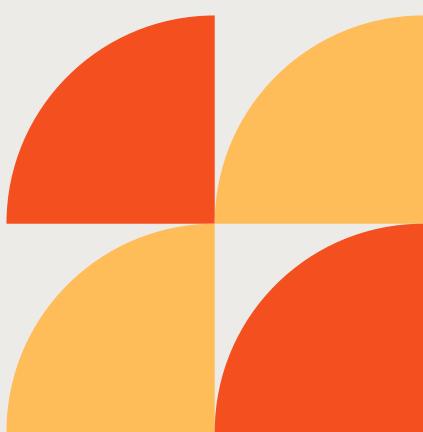
## Microcontrollers

- 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 countrywide



# 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

## Production End

2% of all transactions  
made through us

## Distributor End

No charges  
applicable

## Warehouse End

3% of all transactions  
made through us

## Retailer End

3% of all transactions  
made through us

## Consumer End

No charges  
applicable

# 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**

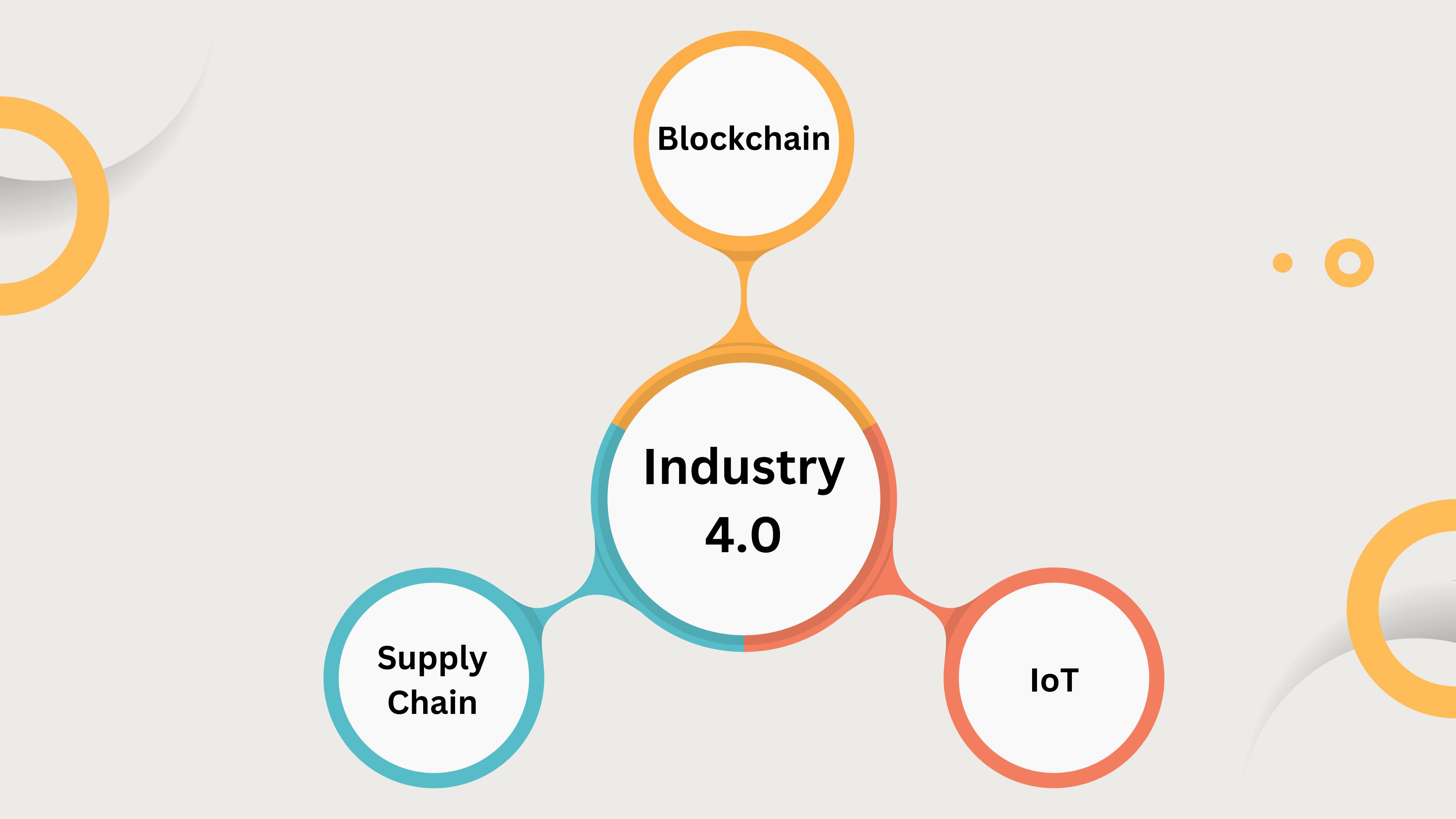
**~120%**

**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



Visit Us

[www.reallygreatsite.com](http://www.reallygreatsite.com)