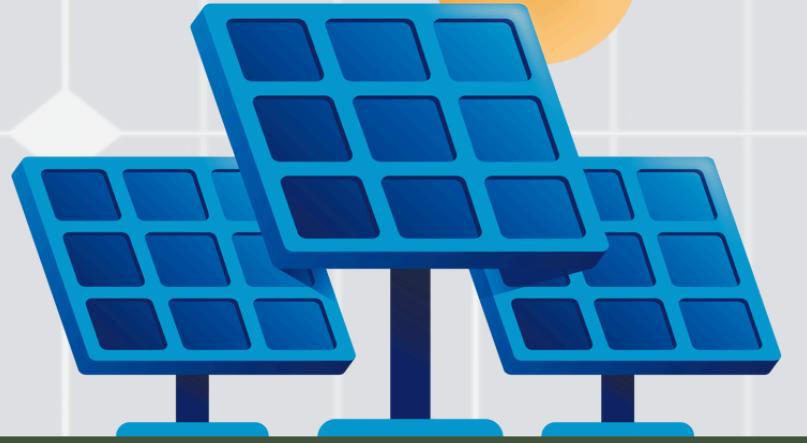




SolChain



Grey Devs



Fatema Begum

Miss Fatema Begum's ambition to sell cold drinks was stifled by the **unreliable power grid**. She couldn't risk her inventory on an appliance that would fail during constant blackouts. Her business was stuck, watching her potential income melt away.



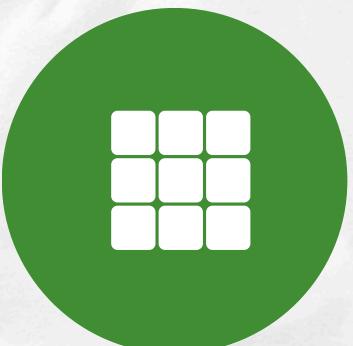
PROBLEMS

Bangladesh's Energy Challenge



Dependence on Fossil Fuels

Over 98% of Bangladesh's electricity comes from fossil fuels, a costly and environmentally damaging reliance.



Grid Instability & Lack of Control

The national grid suffers from frequent blackouts and an insufficient and unreliable supply, especially in rural areas.



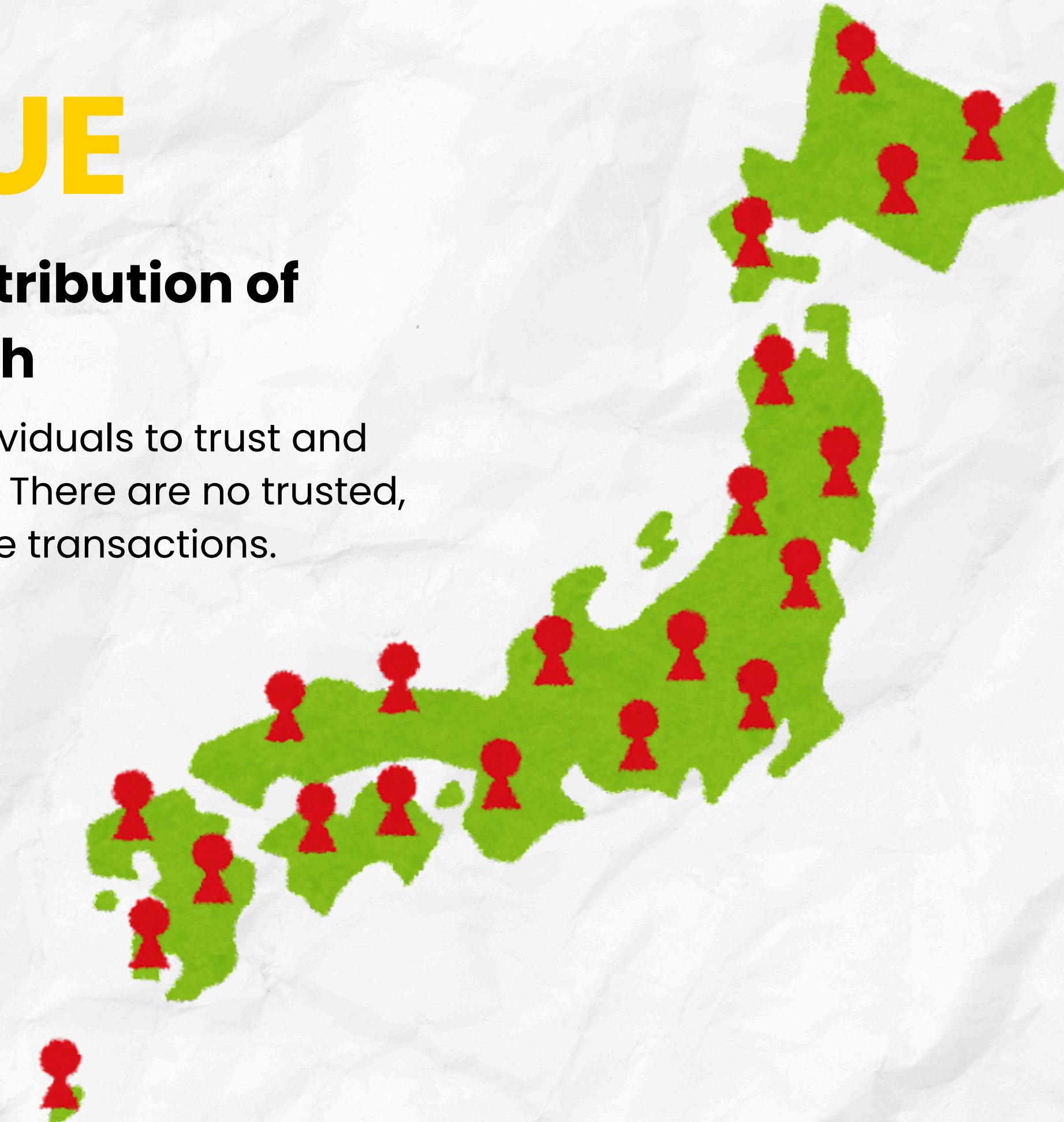
Wasted Energy

Millions of households with solar home systems (SHS) have a surplus of energy that goes to waste.

CORE ISSUE

Inefficient and inequitable distribution of energy in Bangladesh

The current system lacks a mechanism for individuals to trust and coordinate with each other for energy exchange. There are no trusted, low-cost intermediaries to facilitate secure transactions.



OUR BIG IDEA

SolChain: A Blockchain & AI-Powered P2P Energy Trading System

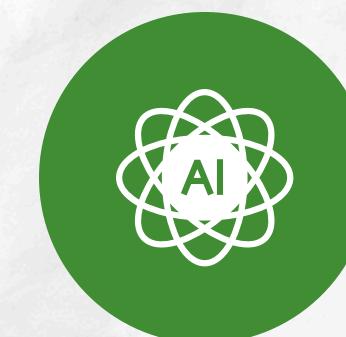


We are building a decentralized, P2P energy trading system that allows individuals and communities to buy and sell surplus solar energy directly to their neighbors.



Blockchain

To create a transparent, immutable, and trustless ledger for all transactions.



Artificial Intelligence

To optimize energy distribution, predict supply/demand, and set dynamic, fair pricing.



Smart Meters

Our proprietary smart meters track energy production and consumption in real-time.

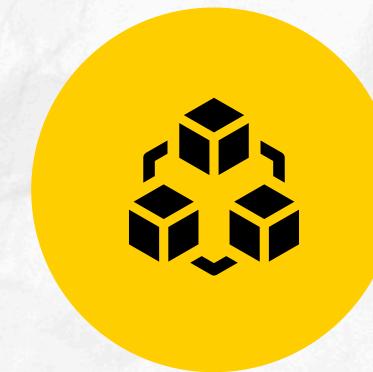
WHY BLOCKCHAIN?

Addressing the Trust Deficit



Smart Contracts

A smart contract automatically executes the energy trade and payment when pre-defined conditions are met



Cloud vs. Blockchain

A conventional cloud solution or database would require a central entity to host and manage the data



Immutability

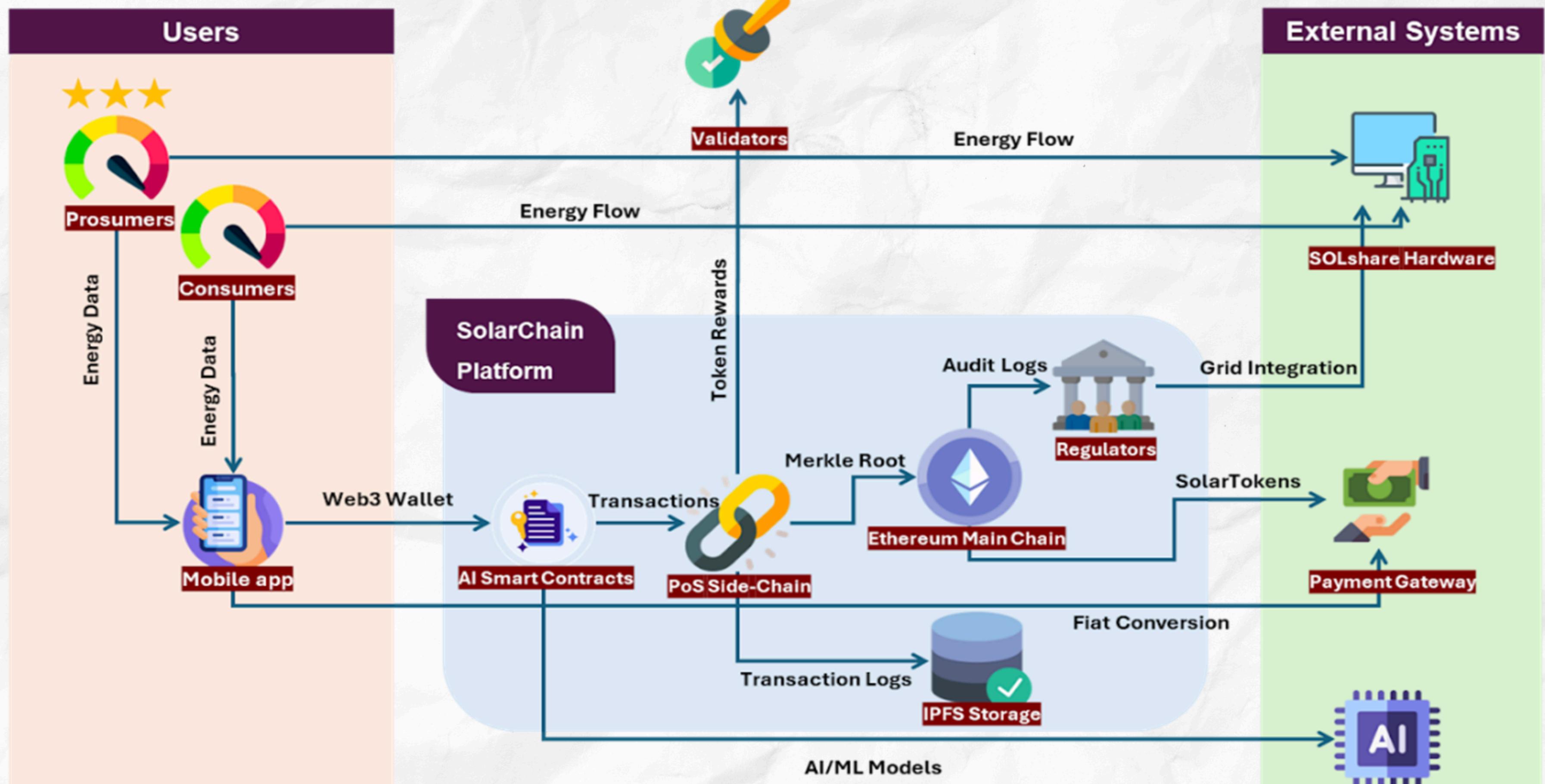
Once a transaction is recorded on the blockchain, it cannot be altered or deleted.



Decentralization

Blockchain eliminates the need for a central, trusted intermediary to manage transactions.

ARCHITECTURE



**OUR
COMPETITORS
ARE
OUR
PARTNERS**

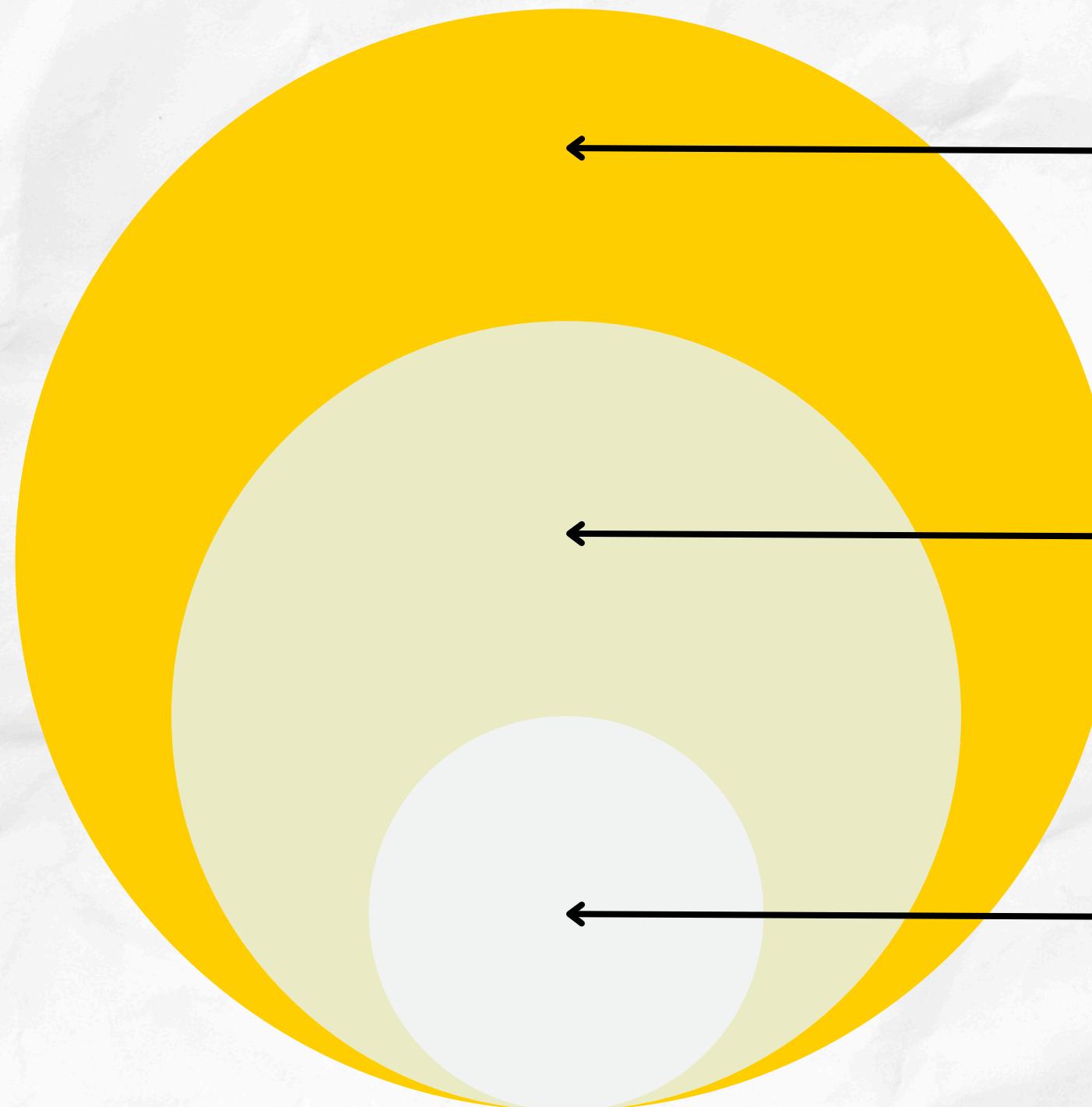


solshare®

SREDA
Sustainable and Renewable
Energy Development Authority

We are going to integrate our
technology with their already
existing infrastructure.

MARKET SIZE



USD 47B

TAM

This represents the total potential market for microgrid deployments worldwide, which SolChain's system falls under.

USD 150M

SAM

This is an estimation of the total value of deploying these nanogrids.

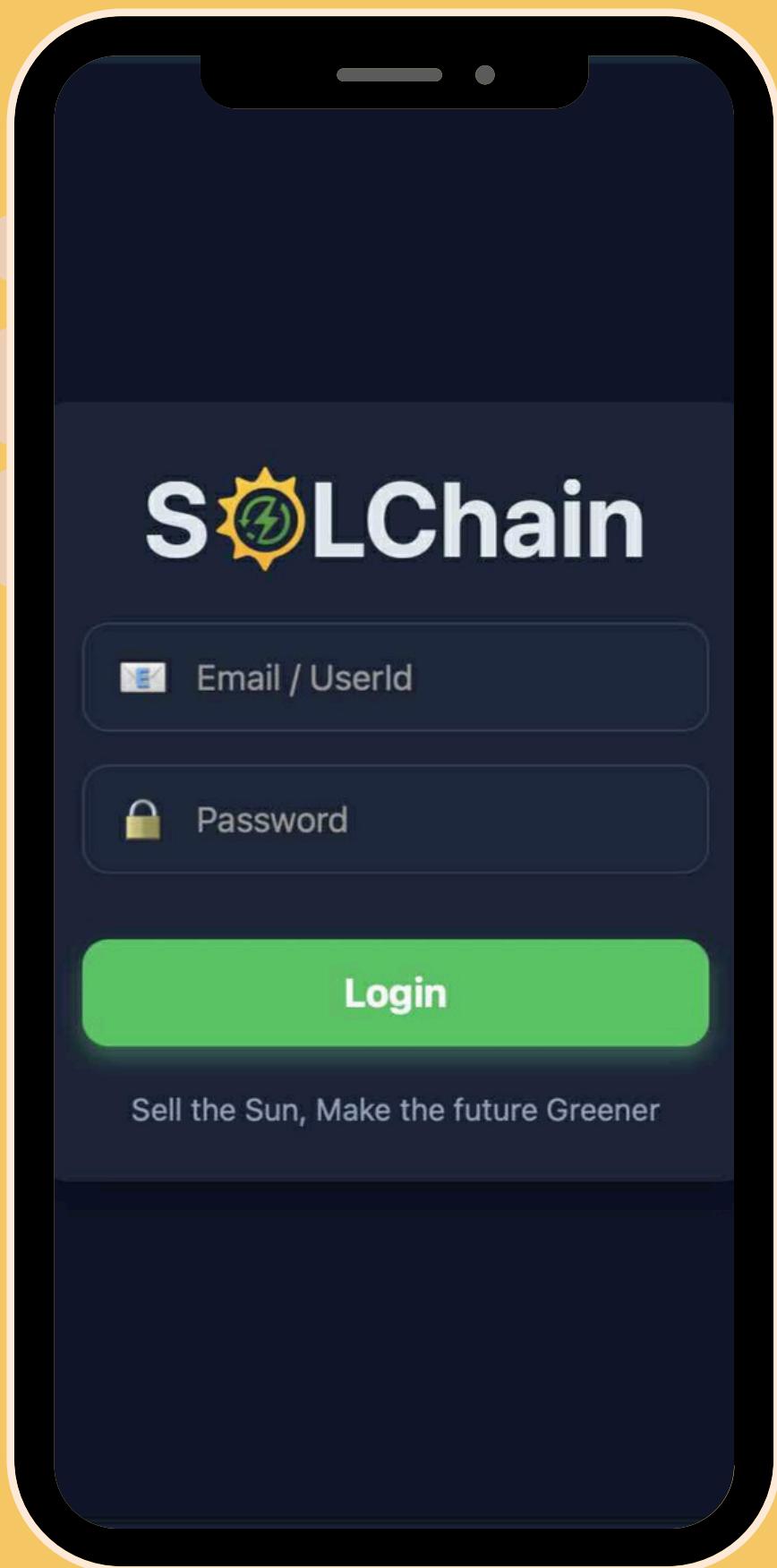
USD 10M

SOM

This corresponds to capturing 5-10% of the target customers by 2030



MOBILE APP INTERFACE



```
class AuthService {
  constructor(userService, energyService) {
    this.userService = userService;
    this.energyService = energyService;
    this.jwtSecret = process.env.JWT_SECRET || 'your-secret-key';
  }

  // Login user
  async loginUser(email, password) {
    try {
      console.log(`🔒 Login attempt for: ${email}`);

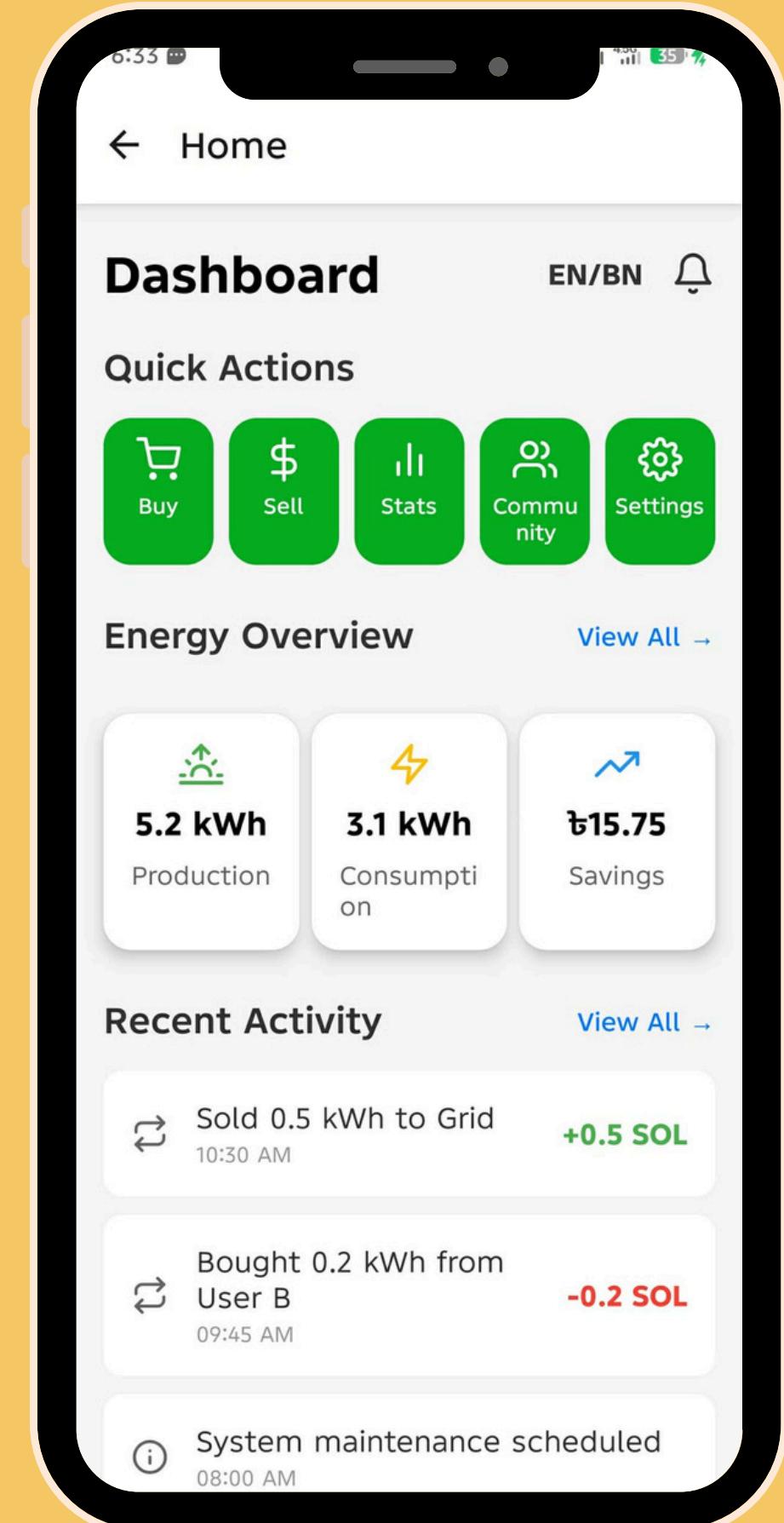
      // 1. Find user in database
      const user = await database.findUserByEmail(email);
      if (!user) {
        return { success: false, error: 'Invalid email or password' };
      }

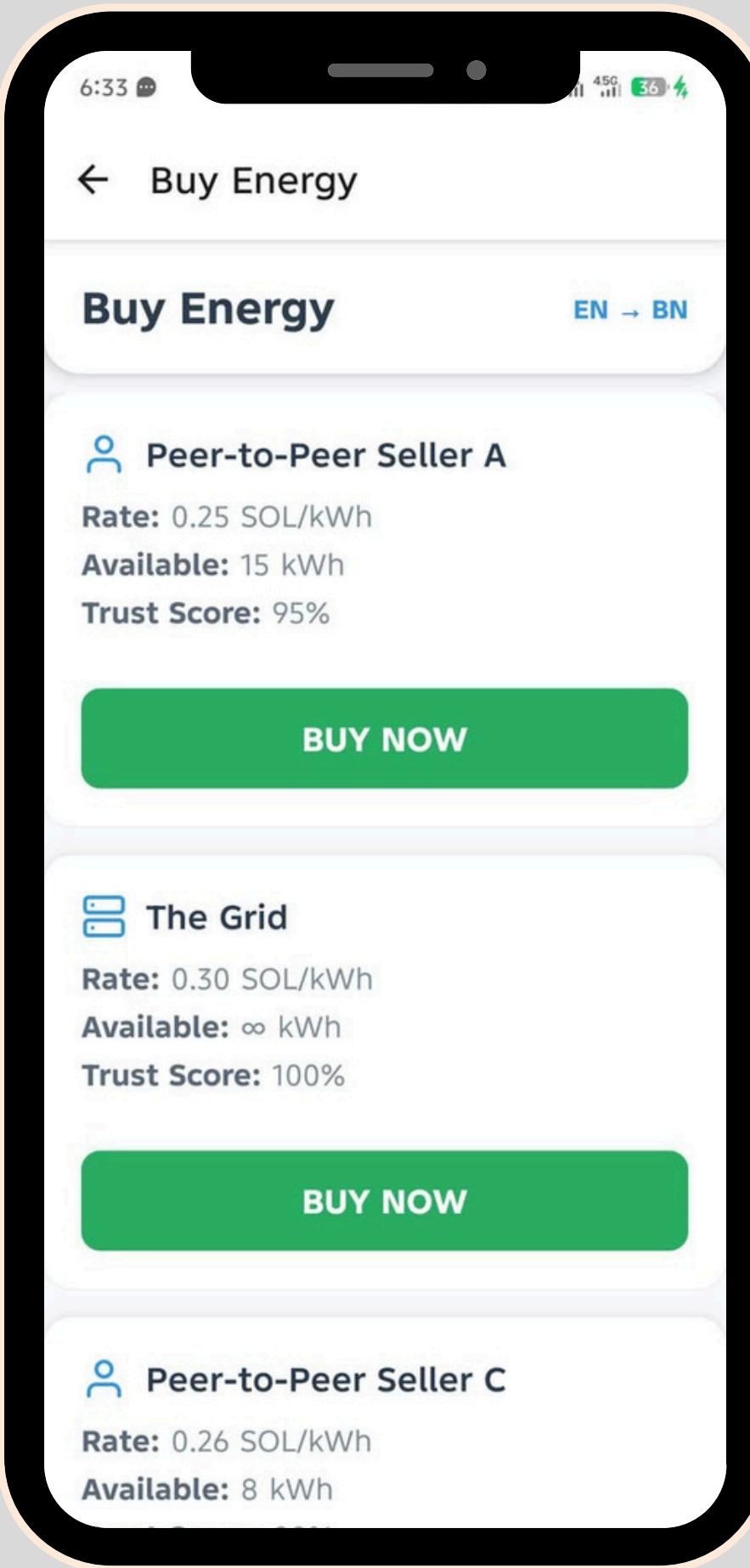
      // 2. Verify password
      const passwordValid = await bcrypt.compare(password, user.hashedPassword);
      if (!passwordValid) {
        return { success: false, error: 'Invalid email or password' };
      }

      // 3. Check if user is active
      if (!user.isActive) {
        return { success: false, error: 'Account is deactivated' };
      }

      // 4. Decrypt private key for blockchain access
      const privateKey = await this.userService.decryptPrivateKey(
        user.encryptedPrivateKey,
        password
      );
    }
  }
}
```

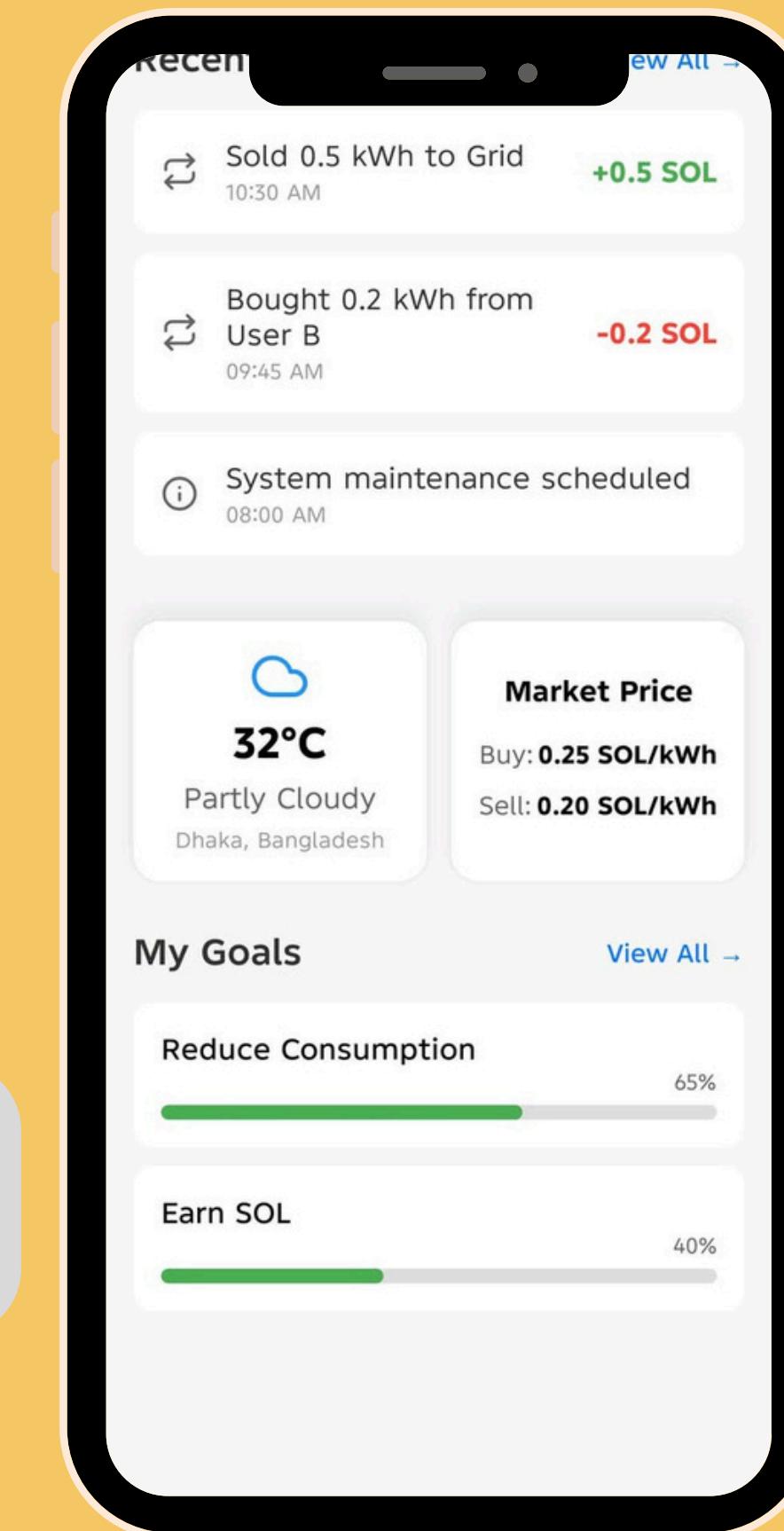
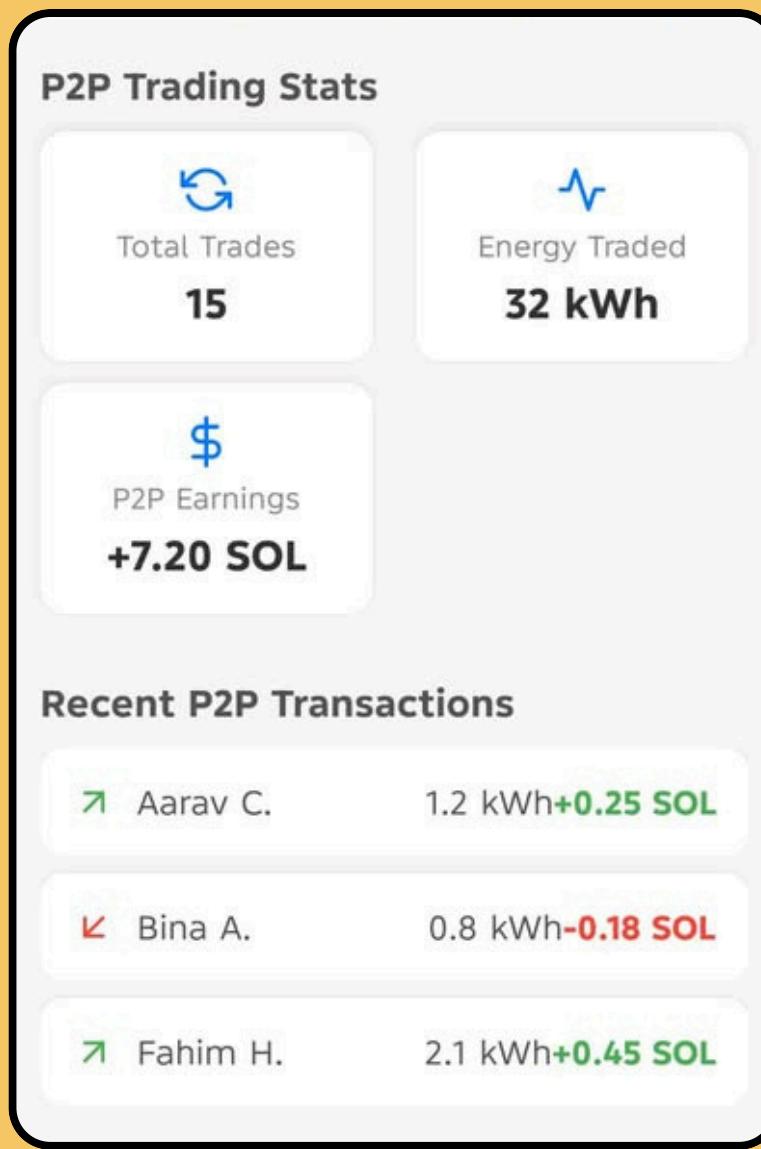
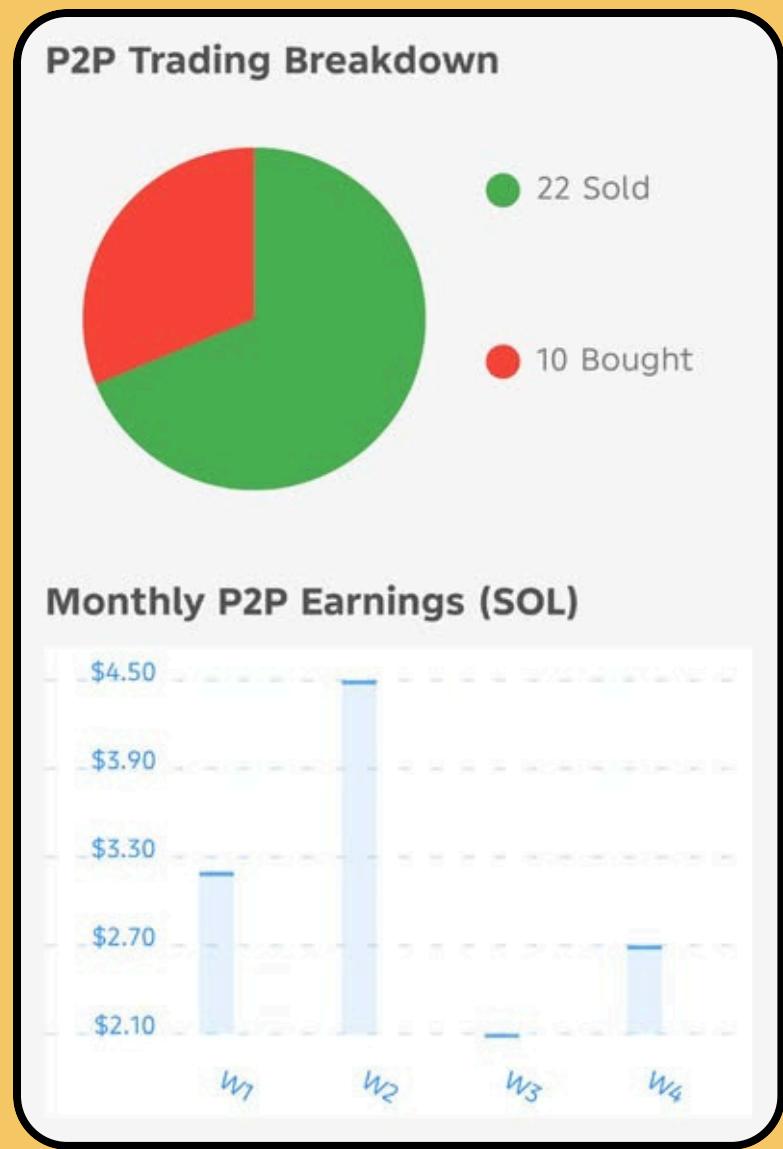
The users can login to their account and the can view their dashboard. They can buy and sell energy just by a click of a button.





```
function acceptOffer(uint256 _offerId) external whenNotPaused nonReentrant returns (uint256) {  
    Offer storage offer = offers[_offerId];  
  
    if (blacklistedUsers[msg.sender]) revert UserIsBlacklisted(msg.sender);  
    if (offer.creator == msg.sender) revert UnauthorizedAccess(msg.sender);  
    if (offer.status != OfferStatus.ACTIVE) revert OfferNotActive(_offerId);  
    if (block.timestamp > offer.deadline) revert OfferExpired(offer.deadline);  
  
    offer.status = OfferStatus.EXECUTED;  
  
    address buyer = offer.offerType == OfferType.BUY ? offer.creator : msg.sender;  
    address seller = offer.offerType == OfferType.SELL ? offer.creator : msg.sender;  
  
    // For buy offers, transfer payment from buyer  
    if (offer.offerType == OfferType.BUY) {  
        solarToken.safeTransferFrom(buyer, address(this), offer.totalPrice);  
    } else {  
        // For sell offers, transfer payment from acceptor (buyer)  
        solarToken.safeTransferFrom(buyer, address(this), offer.totalPrice);  
    }  
}
```

Blockchain based trading system is set up, making it free from corruption



The users can view their stats in the app and take the right decisions accordingly.

Recent activities and current market situations are to be highlighted in the app

6:36

← Notifications

Notifications

EN/BN

Unread

New Trade Alert! 2m ago

You have a new energy trade request from Aarav Chowdhury.

Transaction Confirmed 15m ago

Your sale of 2.5 kWh to Fahim H. was successful. +0.5 SOL added to your wallet.

Community News 1h ago

A new policy on energy trading was just announced.

Read

Network Update 3h ago

Your solar generation data

6:33

← Statistics & Reports

Energy Stats

EN/BN

Overview

Total Savings **12.50 SOL**

Energy Saved (P2P) **55 kWh**

Carbon Offset **25 kg CO2**

Weekly Usage & Generation

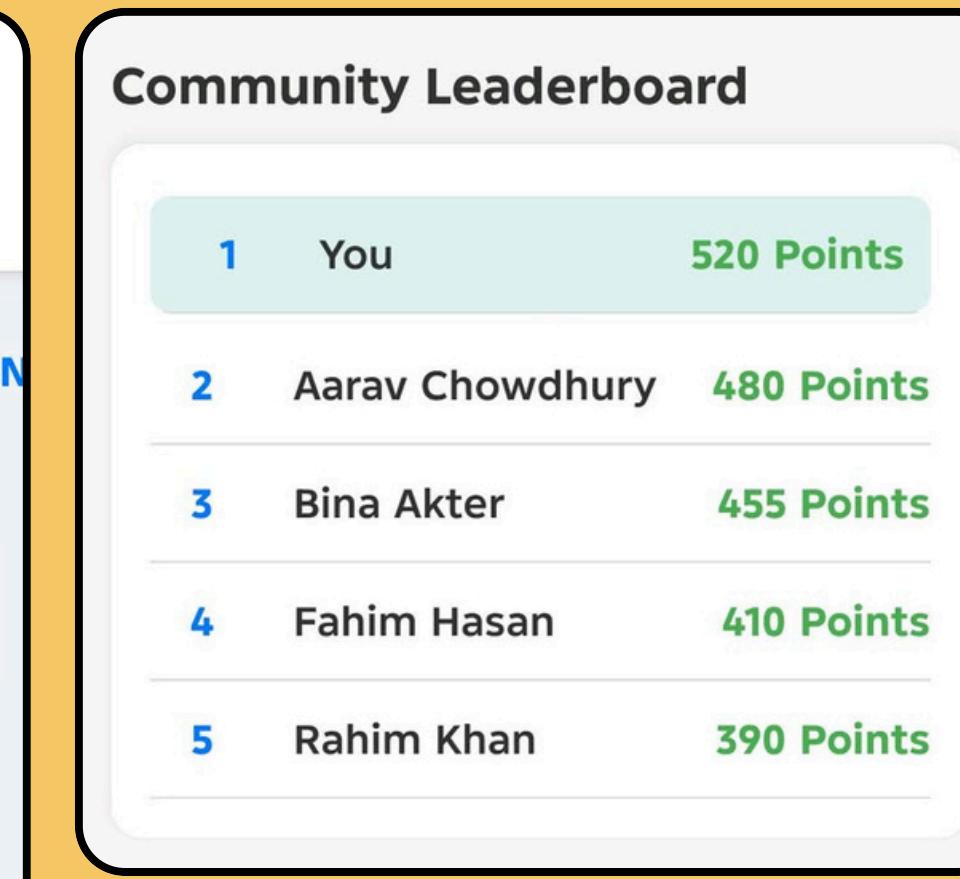
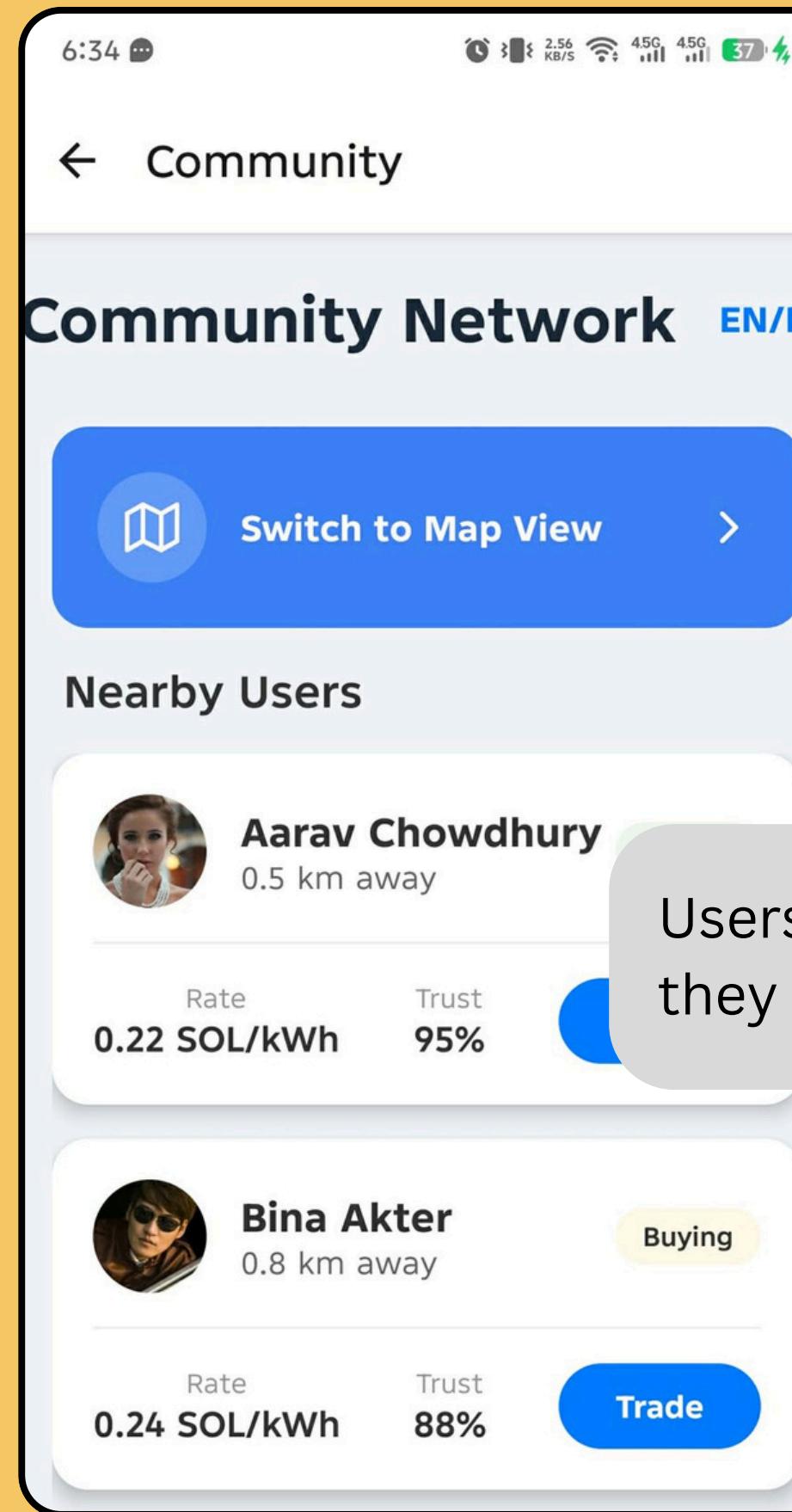
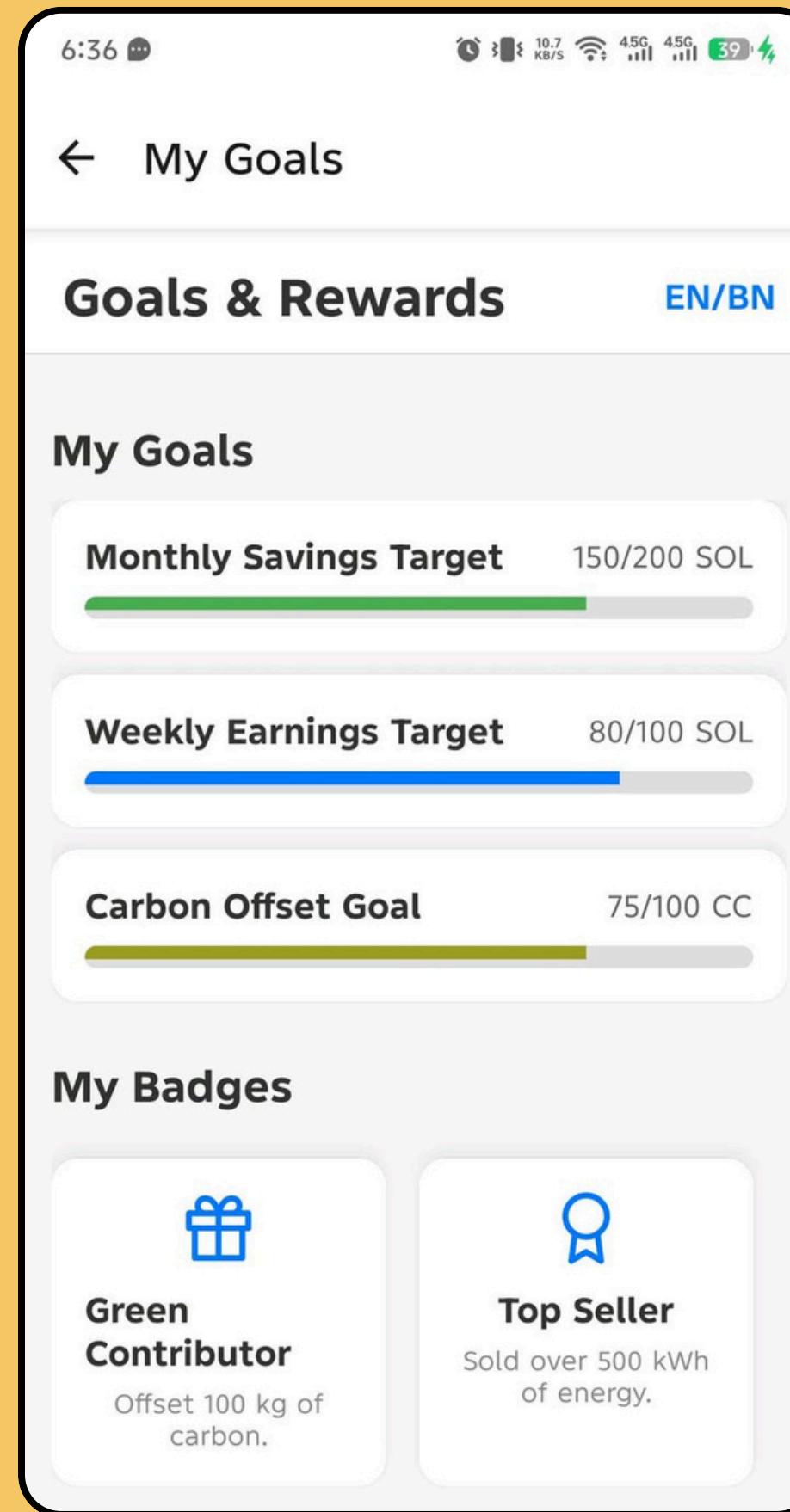
Notifications are going to be sent about the current market situations.

Energy consumption and savings statistics are going to shown.

```
function stake(uint256 _amount, string calldata _metadata)
    external
    whenNotPaused
    nonReentrant
    updateReward(msg.sender)
{
    if (_amount < minimumStake) revert InsufficientStake(_amount, minimumStake);
    if (validators[msg.sender].isActive) revert ValidatorAlreadyExists(msg.sender);
    if (validatorList.Length >= maximumValidators) {
        revert MaxValidatorsReached(validatorList.length, maximumValidators);
    }

    // Transfer tokens
    solarToken.safeTransferFrom(msg.sender, address(this), _amount);

    // Create validator
    validators[msg.sender] = Validator({
        stakedAmount: _amount,
        rewardsEarned: 0,
        lastRewardTime: block.timestamp,
        stakingStartTime: block.timestamp,
        unstakeRequestTime: 0,
        isActive: true,
        isSlashed: false,
        slashedAmount: 0,
        metadata: _metadata
    });
}
```



Users will be a part of Solchain community and they will get to share their goals with each other

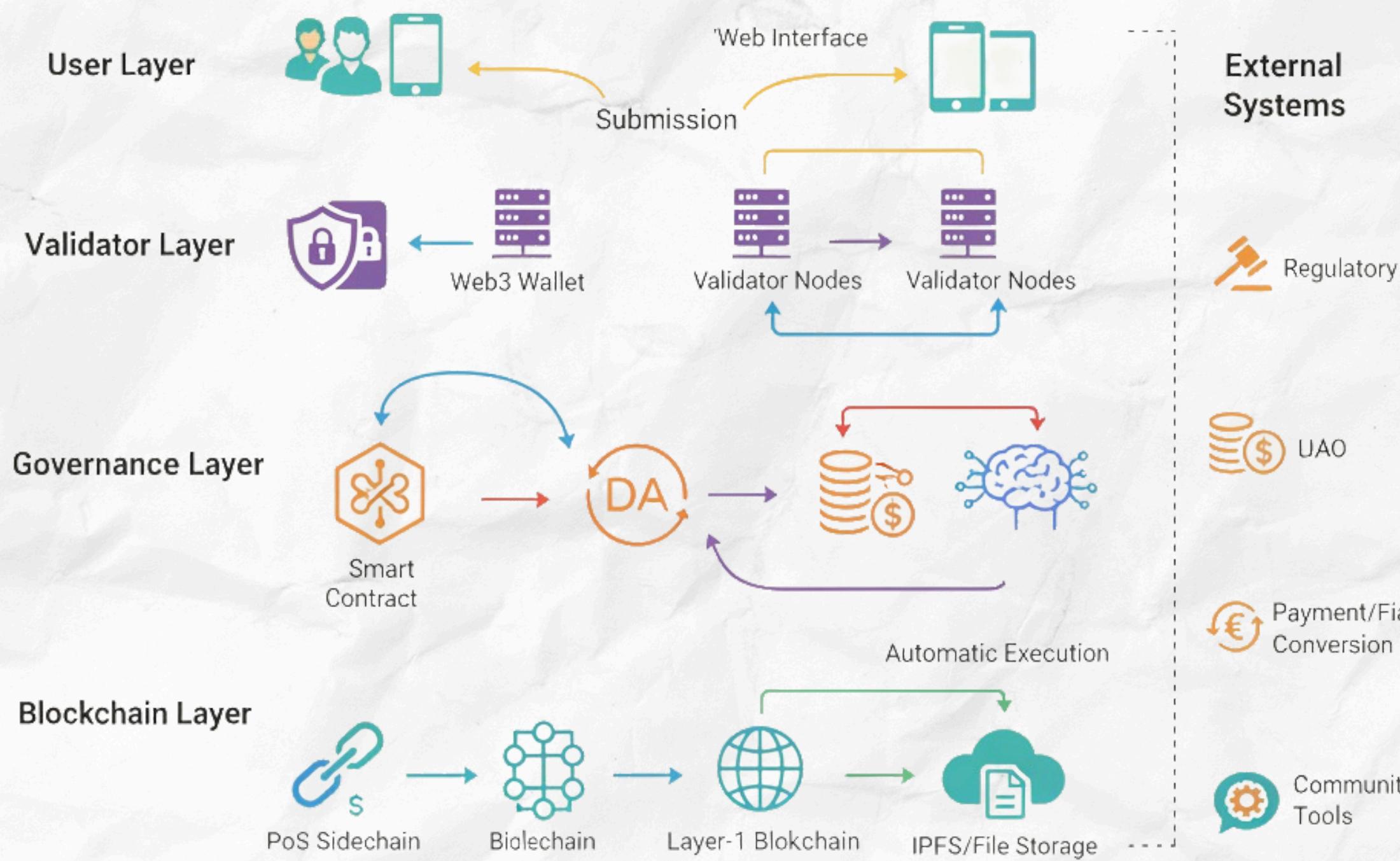
The image displays three mobile application screens related to energy management:

- Energy Dashboard:** Shows real-time metrics including Production (5.2 kW), Consumption (3.1 kW), Grid Feed-In (2.1 kW), and Battery Charge (0.5 kW). It also includes predictive analytics for Price Prediction (\$ 7.71) and Energy Prediction (18.36 kWh), and an Anomaly Score (normal).
- Battery Status:** Displays a battery level of 85% (Charging), health at 98%, and time to full. It also shows grid status as "Connected - Selling" with voltage at 235.5 V and frequency at 50.1 Hz.
- Weather & Forecast:** Provides a weather forecast for Dhaka with a temperature of 34°C and a note about high production expected until 4 PM. It also includes a carbon footprint section showing CO₂ saved today (2.5 kg), total saved (150.2 kg), and equivalent trees planted (7.5).

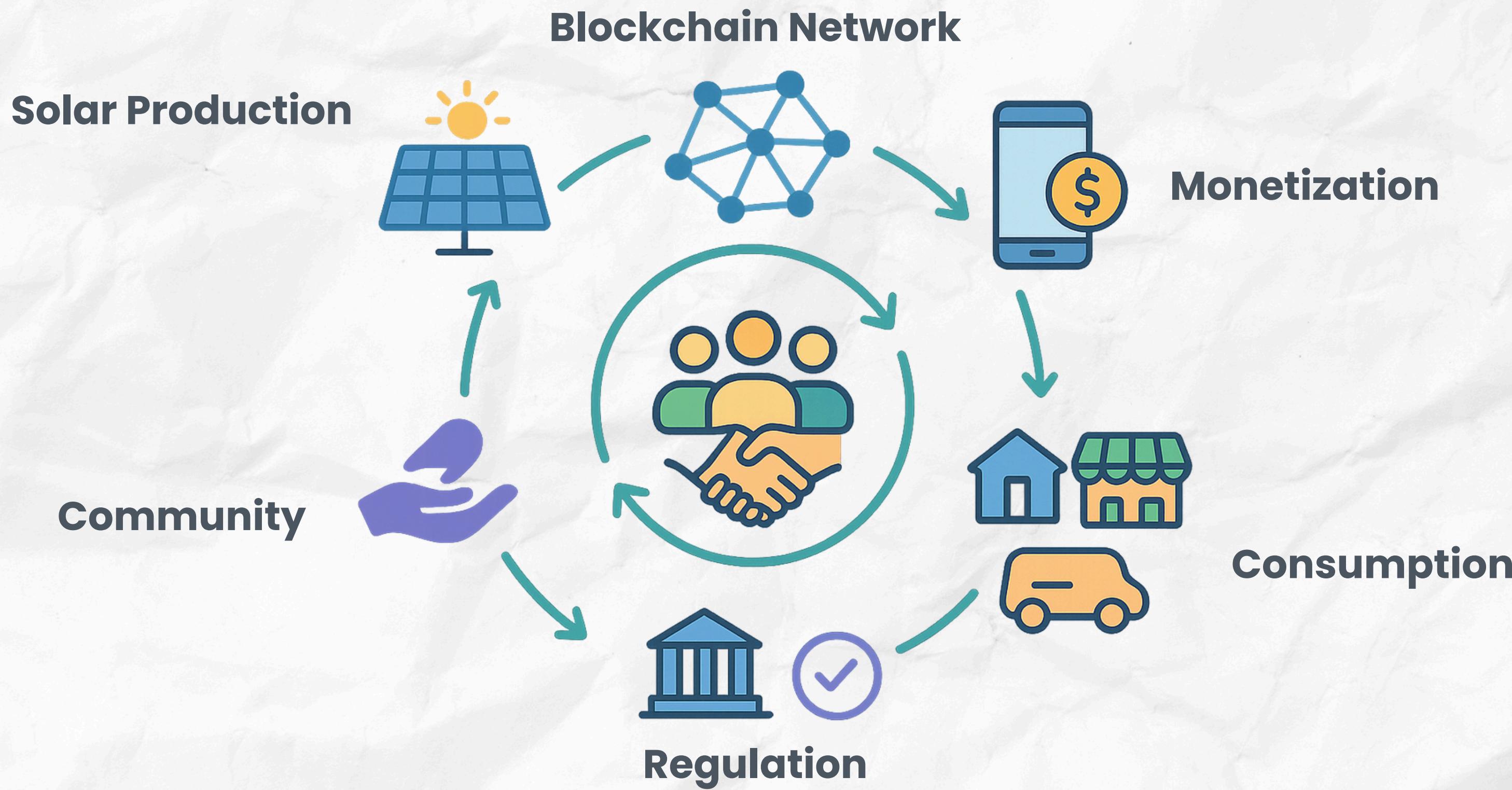
All kinds of statistics will be available on the app so that the users can stay up to date

predictive analysis is being used here on historic data using machine learning

GOVERNANCE



DISTRIBUTION



REVENUE MODEL



8%

per transaction

Transaction Fee

We will take a small percentage of each energy transaction.



BDT 6K

per installation

Installation Fees

Revenue from the sale and installation of our Solar Systems.



Data

Monetization

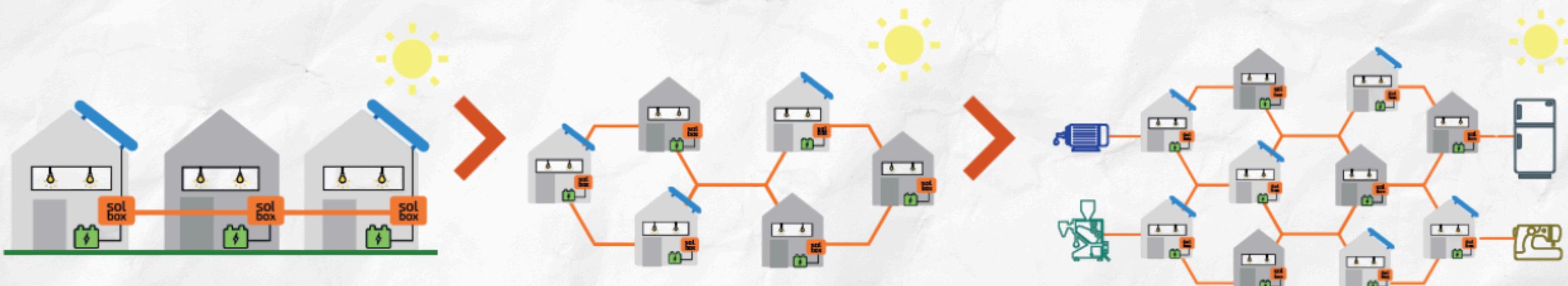
Energy data can be sold to research institutions and agencies for grid planning and policy-making.

5 YEAR PROJECTION

Metric	Year 1	Year 2	Year 3	Year 4	Year 5
Active Users	500	2000	5000	20000	50000
New Installations	250	1500	3000	15000	30000
Installation revenue (BDT)	1500000	9000000	18000000	90000000	180000000
Total Energy traded (kWh)	4500	18000	45000	180000	450000
Total Transaction (BDT)	45000	180000	450000	1800000	4500000
Transaction Fee (8%)	3600	14400	36000	144000	360000
Total Revenue (BDT)	1503600	9014400	18036000	90144000	180360000

BUILD AND GROW FAST

Exponentially expand to neighbouring sites



Pilot Microgrid

Network Expansion

Grid Integration

FUTURE PLANS

Unlocking urban potential



- Intelligent Urban Grids
- Smart City Integration
- High-Tech Parks

RISK MITIGATION



Uncertain blockchain policy

We will engage with regulators to help shape clear and supportive policies for decentralized energy trading.



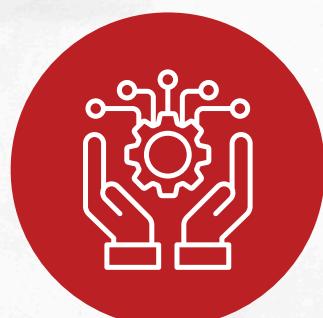
Token volatility

Our platform will use a stablecoin pegged to the BDT to eliminate price fluctuations.



Cybersecurity threats

We will implement robust cryptographic protocols and conduct regular audits to secure the network.



Technological adoption

Our go-to-market strategy will include strong partnerships with NGOs and microfinance institutions to drive community trust and adoption.

WHAT HAPPENED TO FATEMA BEGUM?

With Solchain, Fatema's problem vanished. She became grid-independent, turning her small shop into a thriving business. Customers now flock to her, transforming her from a struggling vendor into a successful entrepreneur.



MEET OUR TEAM



Abu Russel
CSE, BUET

Frontend/Backend
Developer



AHM Fuad
CSE, BUET

AI/ML
Developer



Md. Abu Sufian
CSE, KUET

Lead
Strategist



Ghagra Debnath
CSE, BUET

Blockchain
Developer



A wide-angle photograph of a solar farm. Numerous dark blue solar panels are arranged in long rows across a field. The sky above is filled with scattered, textured clouds, suggesting a late afternoon or overcast day.

Thank
you! :)

LET US
DECENTRALIZE ENERGY
TOGETHER