Community Inclusion Currency (CIC)

Tech Brief

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http://grassecon.org
https://gitlab.com/grassrootseconomics

Community (A) creates a CIC as a voucher for their own goods and services **1a**

Communities can add their CICs to a Common Pool to exchange **3**

Community (B) Creates a CIC **1b**

Community (C) Creates a CIC **1c**

Local Projects and Trade **2**

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∞ COMMUNITY INCLUSION CURRENCIES DASHBOARD

Jan 2020 - Dec 2020 | Standard

👥 USERS

Registered Users	Traders	Supply & Reserve	Exchange & Price
41.7k (total) ⬆365%	**30.7k** (total) ⬆314%	**16.0M** (supply in circualtion)	**1.00** (KES)
33.9k (new) ⬇61%	**1.04k** (frequent) ⬆2.58k%	**1.98M** (reserve)	

📈 TRADES

Standard	Disbursement	Agent Out	Reclamation
263M (KES) ⬆8.00k%	**33.6M** (KES) ⬇63%	**6.17M** (KES) ⬇100%	**15.6M** (KES) ⬇100%
334k TXs ⬆1.15k%	**223k** TXs ⬆282%	**269** TXs ⬇100%	**64.0k** TXs ⬇86%

TRADERS

☐ REGISTERED

TRADE VOLUMES BY SPEND TYPE

Food/Water	65.7M
Farming/Labour	60.6M
Savings Group	50.1M
Shop	46.0M
Other	13.8M
Health	9.90M
Fuel/Energy	7.72M
Transport	7.07M
Education	1.19M
Environment	849k
System	32.4k
Unknown	18.2k

TRADE VOLUMES BY GENDER

■ Female ■ Male ■ Other ■ Unknown
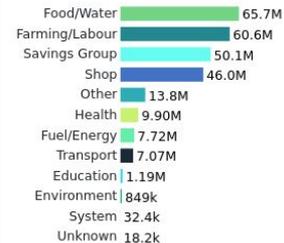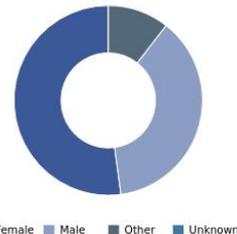
TOP TRADERS

No	BusinessType	Gender	Volume	TXs
1	Farming/Labour	F	4.13M	1.15k
2	Farming/Labour	M	2.61M	585
3	Savings Group	F	2.52M	438
4	Farming/Labour	F	2.28M	729
5	Savings Group	M	2.11M	219
6	Savings Group	F	1.91M	245
7	Shop	M	1.84M	330
8	Savings Group	Other	1.66M	217
9	Farming/Labour	M	1.64M	445
10	Farming/Labour	M	1.60M	360

Spend Types | Transactions | Gender

NO OF TRANSACTIONS

TRADE VOLUMES

Legend (both charts): Education, Environment, Farming/Labour, Food/Water, Fuel/Energy, Health, Other, Savings Group, Shop, System, Transport, Unknown
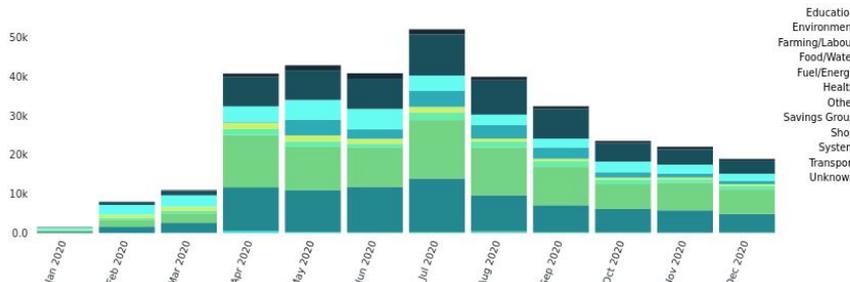
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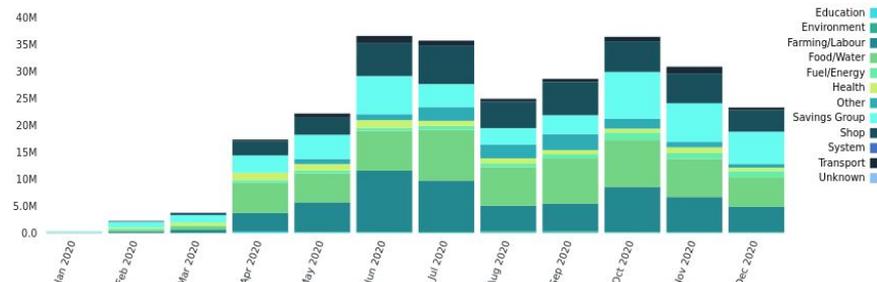
Overview - Guiding principles

- **Open Source All code released**
  - under GPL 3.0
- **Distributed Availability regardless of**
  - involved entities
- **Public Anyone can add**
  - resources to the network
- **Pluggable Implementers can replace**
  - and recombine components
- **Edgy Leave processing and**
  - sense-making to the client
- **Independent Most code from scratch**
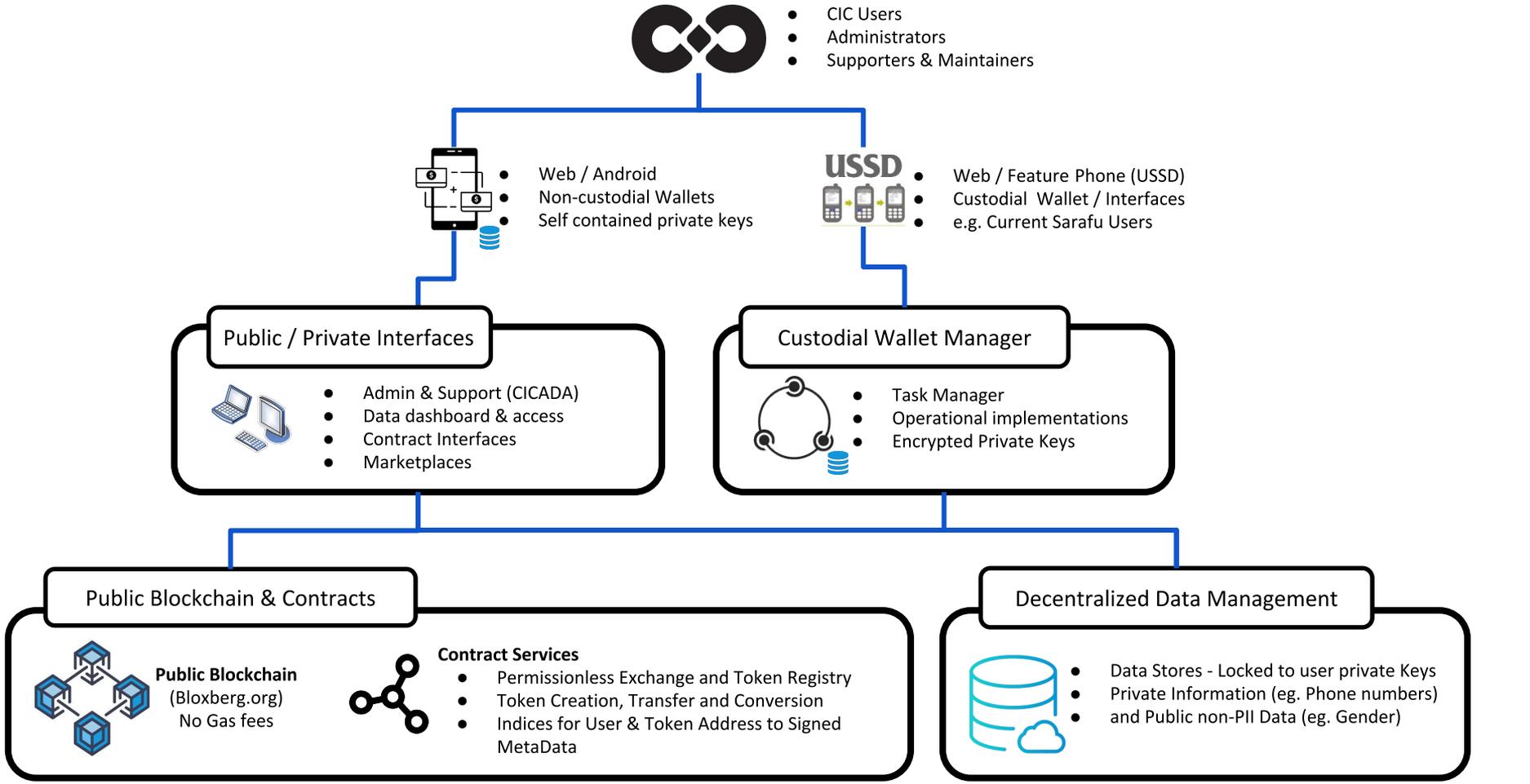 - Utility rather than platform

Grassroots Economics

Grassroots Economics
Group ID: 7914527

Grassroots Economics is a non-profit foundation based in Kenya that seeks to empower communities to build resilient economies.

Subgroups and projects   Shared projects   Archived projects   Search by name   Name

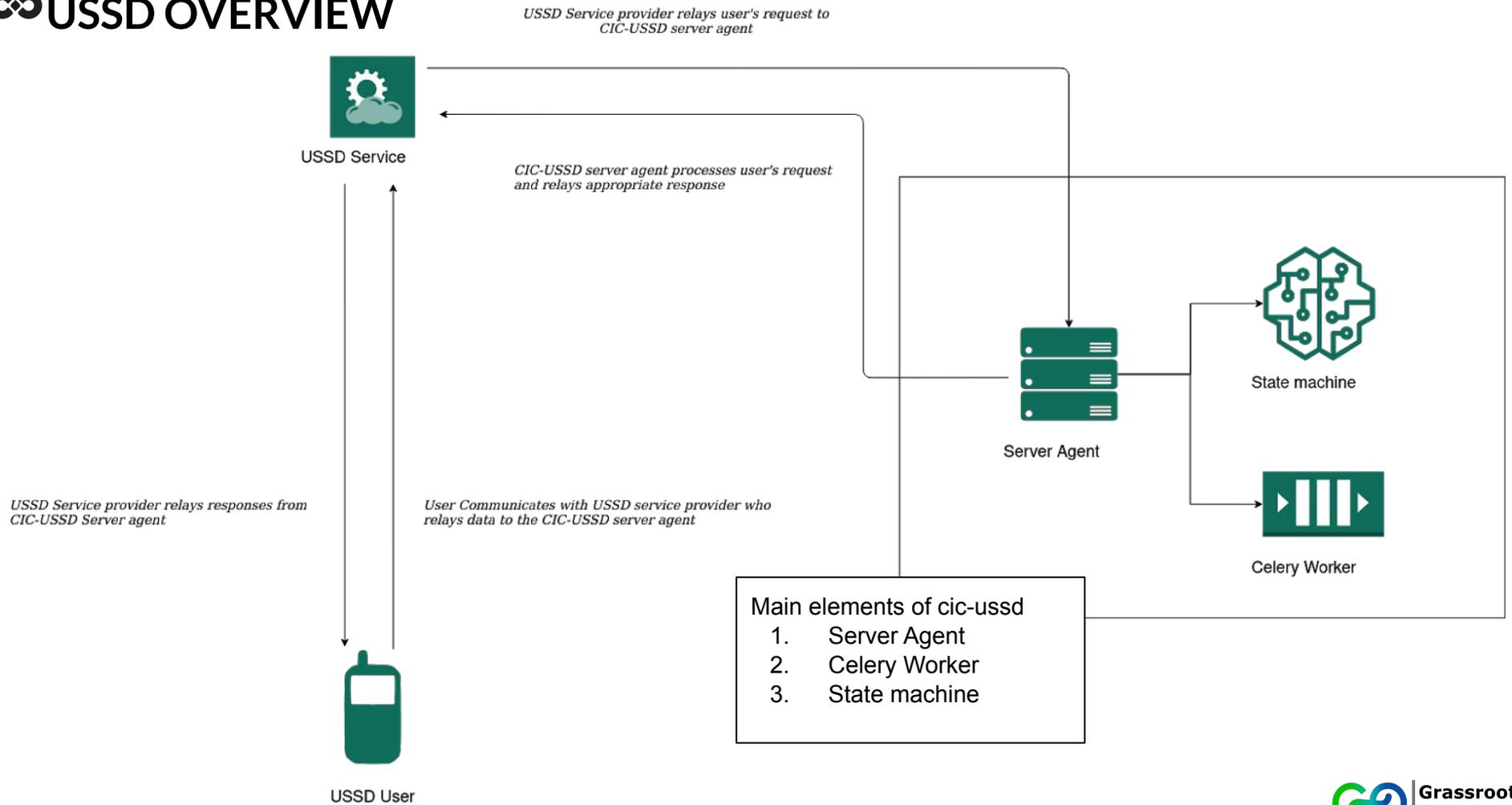|				
B	**Bancor contracts** ⊕ Clone of https://github.com/bancorprotocol/contracts-solidity	★ 0	4 months ago
B	**BloxbergValidatorSetup** ⊕	★ 0	2 days ago
C	**CIC Auth** ⊕ Authentication module for all cic components	★ 0	3 months ago
C	**CIC Auth Proxy** ⊕ Simple reverse proxy layer implementing cic-auth for non-python backends	★ 0	1 month ago
	CIC Bonding-Curve Demo ⊕ This is a web based, interactive demonstration of bonding curve built using React ...	★ 0	6 months ago
C	**CIC Cache** ⊕ Cache engine and API provisions for human interfaces	★ 0	1 month ago
	CIC CLI JS ⊕ Includes the JS implementation of CIC CLI scripts	★ 0	2 months ago
C	**CIC Config** ⊕ Common configuration files across CIC components	★ 0	2 months ago
	CIC Docs ⊕ Community Inclusion Currencies (CICs) are blockchain based tokens which can be i...	★ 2	3 weeks ago
C	**CIC ETH** ⊕ Suite of daemons and tools to monitor and index CIC blockchain events	★ 0	3 months ago
C	**CIC JS** ⊕ Typescript libraries for building CIC client applications	★ 0	2 months ago

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- CIC Users
- Administrators
- Supporters & Maintainers

- Web / Android
- Non-custodial Wallets
- Self contained private keys

- Web / Feature Phone (USSD)
- Custodial Wallet / Interfaces
- e.g. Current Sarafu Users

Public / Private Interfaces

- Admin & Support (CICADA)
- Data dashboard & access
- Contract Interfaces
- Marketplaces

Custodial Wallet Manager

- Task Manager
- Operational implementations
- Encrypted Private Keys

Public Blockchain & Contracts

Public Blockchain
(Bloxberg.org)
No Gas fees

Contract Services
- Permissionless Exchange and Token Registry
- Token Creation, Transfer and Conversion
- Indices for User & Token Address to Signed MetaData

Decentralized Data Management

- Data Stores - Locked to user private Keys
- Private Information (eg. Phone numbers)
- and Public non-PII Data (eg. Gender)

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Overview - Other key features

- Trust
  - Everyone builds trust and decide who to trust
- Cross-chain
  - Interoperability between consensus engines
- CRDT
  - Local-first metadata disseminated between peers
- P2P
  - Applications give each other news about the network

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Window 1 — api_task.py

gitlab.com/grassrootseconomics/cic-...

Matvaretabellen | H | bzz | ge | doc | nerd | electronics

Projects ⌄ More ⌄   41   8   26

api_task.py 12.7 KB

Edit | Web IDE | Lock | Replace | Delete

```python
1   """API for cic-eth celery tasks
2
3   .. moduleauthor:: Louis Holbrook <dev@holbrook.no>
4
5   """
6   # standard imports
7   import logging
8
9   # third-party imports
10  import celery
11  from cic_registry.chain import ChainSpec
12  from cic_registry import CICRegistry
13  from cic_eth.eth.factory import TxFactory
14
15  app = celery.current_app
16
17  logg = logging.getLogger(__name__)
18
19
20  class Api:
21      """Creates task chains to perform well-known CIC operations.
22
23      Each method that sends tasks returns details about the root ta
24
25      :param callback_param: URL to HTTP POST result data, optional
26      :type callback_param: str
27      :param callback_task: Callback task that executes callback_par
28      :type callback_task: string
29      :param queue: Name of worker queue to submit tasks to
30      :type queue: str
31      """
32      def __init__(self, chain_str, queue='cic-eth', callback_param=
33          self.chain_str = chain_str
34          self.chain_spec = ChainSpec.from_chain_str(chain_str)
35          self.callback_param = callback_param
36          self.callback_task = callback_task
37          self.queue = queue
38          logg.info('api using queue {}'.format(self.queue))
39          self.callback_success = None
40          self.callback_error = None
41          if callback_queue == None:
42              callback_queue=self.queue
```

Window 2 — Registry.sol

gitlab.com/grassrootseconomics/cic-...

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Projects Groups Snippets Help   Sign in / Register

Grassroots Economics > cic-contracts > **Repository**

master ⌄   cic-contracts   Find file | Blame | History | Permalink

/ **Registry.sol**

Add token registry   a461f9fc
Louis Holbrook authored 1 week ago

Registry.sol 743 Bytes   Edit | Web IDE

```solidity
1   pragma solidity >=0.6.12;
2
3   // Author:     Louis Holbrook <dev@holbrook.no> 0826EDA1702D1E87C6
4   // SPDX-License-Identifier:    GPL-3.0-or-later
5   // File-version: 1
6
7
8   interface Registry {
9           function owner() external view returns (address);
10          function identifiers() external view returns (bytes32[] mem
11          function chainOf(bytes32 _identifier) external view returns
12          function configSumOf(bytes32 _chain) external view returns
13          function set (bytes32 _identifier, address _address, bytes3
14          function seal() external returns (bool);
15          // TODO: extend RegistryClient, but flatten files
16          function addressOf(bytes32) external view returns (address)
17  }
```

Window 3 — AddressDeclarator.sol

gitlab.com/grassrootseconomics/cic-...

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/

AddressDeclarator.sol

Add token registry   a461f9fc
Louis Holbrook authored 1 week ago

AddressDeclarator.sol 934 Bytes   Edit | Web IDE

```solidity
1   pragma solidity >=0.6.12;
2
3   // Author:     Louis Holbrook <dev@holbrook.no> 0826EDA1702D1E87C6
4   // SPDX-License-Identifier:    GPL-3.0-or-later
5   // File-version: 1
6   // Description: The ERC20 standard interface as specified in EIP20
7
8   interface AddressDeclarator {
9           function addDeclaration(address _address, bytes32 _proof) e
10          function declaratorCount(address _objectAddress) external v
11          function declaratorAddressAt(address _targetAddress, uint25
12          function declaration(address _subjectAddress, address _obje
13          function declarationCount(address _subjectAddress) external
14          function declarationAddressAt(address _subjectAddress, uint
15  }
```

USSD OVERVIEW

USSD Service provider relays user's request to CIC-USSD server agent

USSD Service

CIC-USSD server agent processes user's request and relays appropriate response

State machine

Server Agent

Celery Worker

USSD Service provider relays responses from CIC-USSD Server agent

User Communicates with USSD service provider who relays data to the CIC-USSD server agent

USSD User

Main elements of cic-ussd
1. Server Agent
2. Celery Worker
3. State machine

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```
1   CON Balance
2   1. Send
3   2. My Account
4   3. Help
5
```

```
1   CON My account
2   1. My profile
3   2. Change language
4   3. Check balance
5   4. Change PIN
6   0. Back
7
```
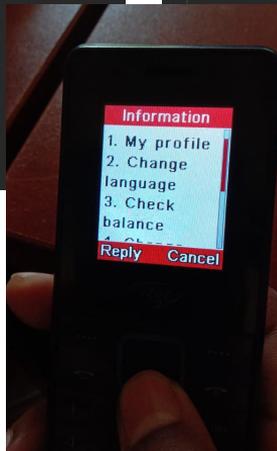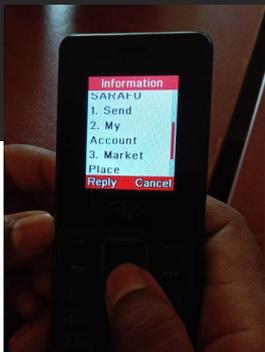
Field Demo
https://youtu.be/UqobcADSUTQ

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USSD: KEY FUNCTIONALITIES

Some of the notable capabilities

of the application:

- Callback Handling
- Event notification
- Optimizations

CIC ADMIN DASHBOARD (CICADA)

Administration web app that enables the staff or humanitarian teams to interact with the user activity and provide user support to users experiencing issues.

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COMPONENTS: DASHBOARD

Dashboard - Data visualization that provides information coming directly from the blockchain network.

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COMPONENTS: ACCOUNTS

Accounts - Viewing and management of all user accounts on the network. Provide assistance to users on the setup of their accounts and profile information.

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COMPONENTS: TRANSACTIONS

Transactions - Keeps track of all transactions occurring in the network.

COMPONENTS: TOKENS

Tokens - Viewing of information on all tokens in the network.

Thank you!

Grassroots
Economics

http://grassecon.org

https://gitlab.com/grassrootseconomics