Problem Statement 3

Physical Representation of Market Performance for ALGO

From "smart" TVs to security cameras, Internet of Things (IoT) devices are now ubiquitous in modern homes and offices. Defining the Internet of things comes down to "simply the point in time when more 'things or objects' were connected to the Internet than people". Utilizing these embedded devices, information visualization of real-time information allows for advanced applications where visual data analysis can be seamlessly integrated into the everyday tasks.

At the same time, blockchain and cryptographic solutions are considered highly ethereal and abstract by most in the 'outside' world and yet lend themselves extremely well to the use cases and data visualizations of IoT and physical computing in a rather seamless manner.

A few use case on-chain IoT projects:
- Crypto [cat feeder](#)
- PlanetWatch [Air Quality](#) Monitoring
- NetObjex [Smart Parking](#)

To learn more about IoT and physical computing:

- https://en.wikipedia.org/wiki/Physical_computing

- https://en.wikipedia.org/wiki/Internet_of_things (IoT devices)

Problem Description

IoT faces identity, security, and interoperability problems. The majority of current systems rely on centralized client-server models that will soon be rendered obsolete due to the increasingly rapid rate at which devices are connecting to the Internet. Blockchain offers a solution as a shared, distributed, and decentralized ledger that allows development of decentralized applications to run at optimized thresholds. As a result new systems need to be modular and robust to maintain their competitive advantage. They should consist of a smart contract, web interface, sensors, and decentralized data infrastructure that relies on on-chain data to trigger real world events. Users and entities can register devices within a smart contract and then subsequently control information via a web interface. Devices sign messages using private keys which are sent to the platform along with control information and associated proof. Received messages are validated using blockchain, which at the end provides authentication, integrity and non-repudiation.

Expectation

It is expected that the solution includes the following components:

1. Implementation of a blockchain specific on-chain application
2. Analysis of the value added to the application as a result of decentralization and utilization of the blockchain
3. Deployment and real time information input or output by internet-connected devices (IoT)
4. Solutions for interfacing with and initiating on-chain events
5. Visualization interfaces to better analyze and understand these events

While we are not expecting fully functional or fleshed out deliverables for each of the components listed above, the most successful solutions will be those that coherently and convincingly deploy blockchain technologies via IoT devices or solutions.

Evaluation Criteria

The evaluation parameters will be listed on the hackathon landing page.

Tools & Technology

1. Arduino

2. Raspberry pi / Beagle Bone

3. Tutorials for Algorand

Resources & References

- https://developer.algorand.org