CarpETHii

Goal

How can WWF incentivize local communities in Carpathian Mountains to cooperate with the environmental project, act honestly and improve the quality of the whole ecosystem?

Main requirements

* Funding from stakeholders flows into WWF led projects and local community projects
* Local community projects get selected/prioritized by the community
* The funds for local projects should depend on the health of the ecosystem
* Main tasks are defined by the stakeholders that need to be done
* Community members can propose and complete minor tasks to help the ecosystem

Solution

* Use Ethereum based private blockchain installed on the WWF compute nodes distributed across their offices
  + Use Proof of Stake implementation to save computational power (since all nodes are controlled by WWF)
* Following Smart Contracts are deployed in the Ethereum Blockchain
  + mainState (mainState.sol) – where the main logic is implemented
    - Users of the system are created and stored in this contract – stakeholders and community members
    - This contract distributes own Tokens to Stakeholders and Community members
    - Task list is stored and tracked in this contract
    - Ecosystem performance function is computed here with input from:
      * Subjective voting of stakeholders
      * Input from ecosystem IoT sensors
      * Tasks successfully completed by the community members
  + projectVoting (projectVoting.sol) – this contract stores local community projects with their ranking and status
  + CarpETHii Community Token (CETHc.sol) – a.k.a. voting token - private token that gets distributed to the community members and can be used for voting
  + CarpETHii Investor Token (CETHi.sol) – a.k.a decision token - private token distributed to the investors that represent their stake in the system, it can also provide weight to the performance indicators
  + EuroWWFcoin (wwefc.sol) – a.k.a finance token - private (non-volatile) token distributed to the community members that can be exchanged for the same amount of money at the WWF
* Stakeholders can donate money to the system and receive tokens representing their stake
  + The token received is “CarpETHii Investor Token”
  + Stakeholders receive tokens only by donating more than certain amount of money
  + Stakeholders can interact with the mainState smart contract using their Ethereum address and give subjective vote about the performance of the ecosystem
  + The number of tokens give them power when judging the performance of the ecosystem
* Donated money (off-chain) is tracked as a number in the mainState smart contract for the bookkeeping, all the expenses are tracked here
  + This donated money will be released to the community tokens based on the performance of the system in particular time intervals
* IOT Sensors – sensor measure performance of the ecosystem and provide aggregated input to the main performance function in the mainState contract
  + Sensors should use Oracle to aggregate their output and translate the output in a summarized way
  + Sensors will also determine the outcome of a specific task if this is feasible
  + Sensor data are not stored on the Blockchain, only the aggregated results
* Local community projects – these projects are financed by part of the stakeholders’ investments
  + The amount of funds these projects receive is dependent on the performance of the ecosystem
  + Local community proposes these projects off-chain during regular get-togethers
  + The voting for projects is done by sending private voting tokens (CETHc) to the smart contract projectVoting, providing the name of the project that should get the tokens
  + List of the projects is implemented as a mapping in Solidity
  + The project with the most tokens will get implemented in specific time intervals
* Tasks for the local community – these tasks are open for completion
  + Tasks are defined either by the stakeholders (these tasks get higher weight – higher reward)
  + Local community can also define tasks themselves during regular get-togethers
  + Tasks need to be claimed by community members if they are unclaimed yet
  + Tasks can either be completed automatically by using an IOT sensor or they need to be claimed as completed by the task assignee
  + Task assignee can upload data related to the task completion to the system (GPS data, pictures). This data is not stored on the blockchain but in a dedicated database.
  + When task is marked as completed by the assignee, then the community needs to vote about the outcome of the task
  + If task is completed (automatically or it was voted completed), the task assignee gets voting tokens and finance tokens
  + Any completed task improves the performance of the ecosystem