TU Clausthal

Exercise – 11

Published on: 01.07.2024

Deadline: 08.07.2024 – 1:59pm

Submission:

- Create a file info.txt containing the *address of the deployed smart contract*, another file abi.json that contains the ABI of your smart contract, and <smartContractName>.sol containing the source code of your smart contract.
- Upload these three files to Moodle.

Blockchain Smart Contract Energy Trading

Our last exercise leads us back to the initial IoT tasks related to buying and selling energy. Assuming you are an Energy Seller, write a smart contract that can be used to trade energy. Following functions required:

1. createOffer(offerID, amountToSell, pricePerUnit) → creates an offer to sell energy from the seller side (offerID, amountToSell(in kWh) and pricePerUnit(in gwei) are all integers)
2. listOffers() → returns a list of offers that are not yet closed
3. closeOffer(offerID) → offer should not be available anymore after energy was sold
4. buyEnergy(offerID) → buy energy by paying ETH, if the offerID is not closed (Just return True/False depending on whether enough ETH is provided when calling this method). After the offer is fulfilled, automatically close the offer, i.e, offer should not be accessible.

Task(s):

1. Deploy the smart contract on the Sepolia Ethereum test network.
2. Create an offer on your contract with amountToSell=10 and pricePerUnit=100000000 gwei (0.1 ETH).
3. Don't close the offer.
4. Submit the exercise by following the instructions on the previous page