ZKU Final Project - zkGuessWho
Report 2

date: Jun 18, 2022
e-mail: eliasmoini@gmail.com
discord: elmol#0775
repo: https://github.com/elmol/zk-guess-who
video: https://youtu.be/edVeHqSW37c
Dapp: https://zk-guess-who.vercel.app/

ZK Guess Who Game

The game is a variant of the "**guess who**" game https://en.wikipedia.org/wiki/Guess_Who%3F .
A two player game where they try to identify the other's chosen character. Zk proofs is used
to keep the characters and the game privacy

Scope

For the ZKUC03 final project proposal: As I mentioned above, the *zkGuessWho* characters
board is hard coded to **6x4** numeric characters. Characters are defined by a set of **4** numeric
characteristics. Characteristics contain **4** numeric variants between **0-3.**

Random board generation, graphical characters, and NFTs are out of the scope.

Deadlines

- June 27: testnet launch
- July 4: mainnet launch
- July 11: late mainnet launch (60% of prize)

Road Map

Perpetual Game Delivery (DONE)

Have a perpetual game with one board shared where anyone can guess. The board was
initialized one time by the owner (me). The owner is responsible for answering the question.

Targets:
- ☑ ~~Circuits splits~~
- ☑ ~~Salt Generation~~
- ☑ ~~Hash generation in circuits~~
- ☑ ~~Output answers should be calculated in the circuit~~
- ☑ ~~Basic UI app messages handling~~

This milestone **was released in harmony devnet.** You can see the **demo** for this release in https://youtu.be/edVeHqSW37c and also you can access and test it the dapp game in https://zk-guess-who.vercel.app/

Master and Guesser Delivery (Working on)

Have only one room game with one board where two players (creator and guesser) can interact. The creator creates the game selecting a character and the guesser makes questions that the creator should respond to. The game finishes when the guesser guesses the character and the room is free.

Targets:
- ☑ ~~Error managements~~
- ☐ Game creation by select character
- ☐ Game win / lose strategy
- ☐ Creator and Guesser logic (join to an created game)

One Room Delivery
Have only one room game but with two boards playing by turns, player 1 should guess the player 2 character and vice versa, game finish when a player guesses the other player character.

Final Delivery

Multi room game complying with the proposal of the final project.

Observations

As you can see in the road map I 've splitted the final project into 4 incremental deliveries. My idea is to have these deliveries deployed in testnet so I can get feedback from mentors. If there is no problem I'll ask for a review from mentors each time that a delivery is done.

Current State

As I've released the first delivery **Perpetual Game Delivery in devnet,** you can see the state in targets. You can see the **demo** for this release in https://youtu.be/edVeHqSW37c and also you can access and test the dapp game in https://zk-guess-who.vercel.app/ . I'm working on the second delivery **Master and Guesser Delivery** focus on the win/lose strategy and creator / guesser logic.