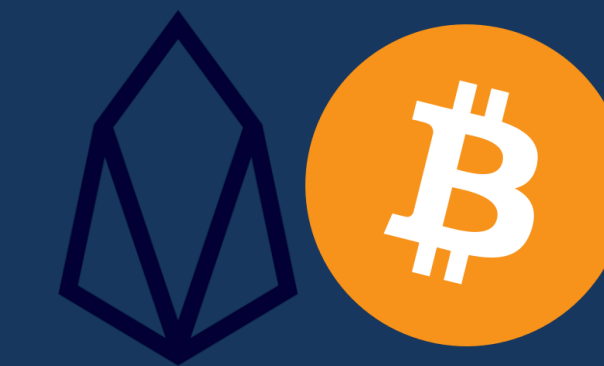




Cryptomon: Blockchain Based Game for Everyone

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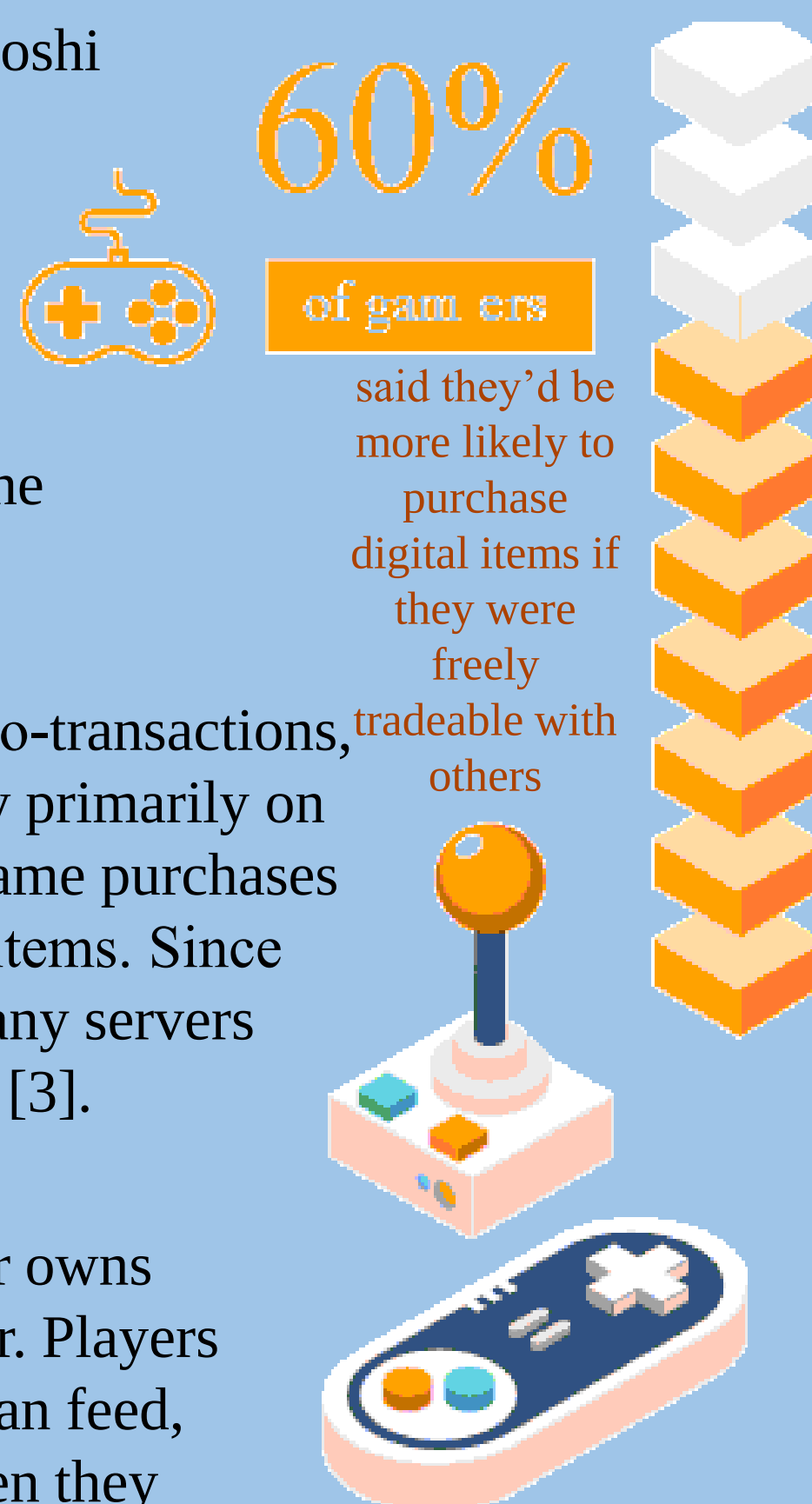
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Background/Purpose

In 2008, the widely mainstream cryptocurrency known as Bitcoin by Satoshi Nakamoto was released introducing a trustless computational architecture, the blockchain. Blockchain tech facilitated Bitcoin's decentralized currency system securing its digital currency across multitudes of devices, and has spurred the rise of other purpose-built blockchain networks [1].

Today's videogames are filled with micro-transactions, gamers spend over \$100 billion annually primarily on these in-game purchases. But these in-game purchases don't lead to any ownership of in game items. Since for most games, data is hosted on company servers with full discretion given to the creators [3].

We are creating a game where the player owns his/her unique pet digital crypto-monster. Players can grow attached to their pet. Players can feed, groom, and play with their pet, then when they want another, they can trade, breed, buy, or sell!



Operational Goal

The end goal of Cryptomon is provide a gaming architecture which grants unprecedented ownership and control of the digital asset of the user then package it in a kid friendly shell. Users can invest lots of effort in caring for their assets and trade with complete certainty that no tampering for gain, hacking, or revocation of ownership. We will bring the excitement of a blockchain into the palm of your hands!

Proposed Solution

To ensure a tamper-proof, immutable gaming application, EOSIO is a DApp platform of choice due to its efficient consensus mechanism, dPOS, achieving high throughput and scalability compared to traditional platform Ethereum [2]. A smart contract is developed using EOSIO cdt and C++. For the visualization of the smart contract, a flavor of js called eosjs. For hardware, the powerful Pi 3 is used along with EOSIO toolchain to interact with the contract, buttons for user input, a TFT screen for graphics, and an enclosure for all components as depicted in the visual below. Our goal is to have a functioning blockchain based game application running on a portable gaming system!



Major Components

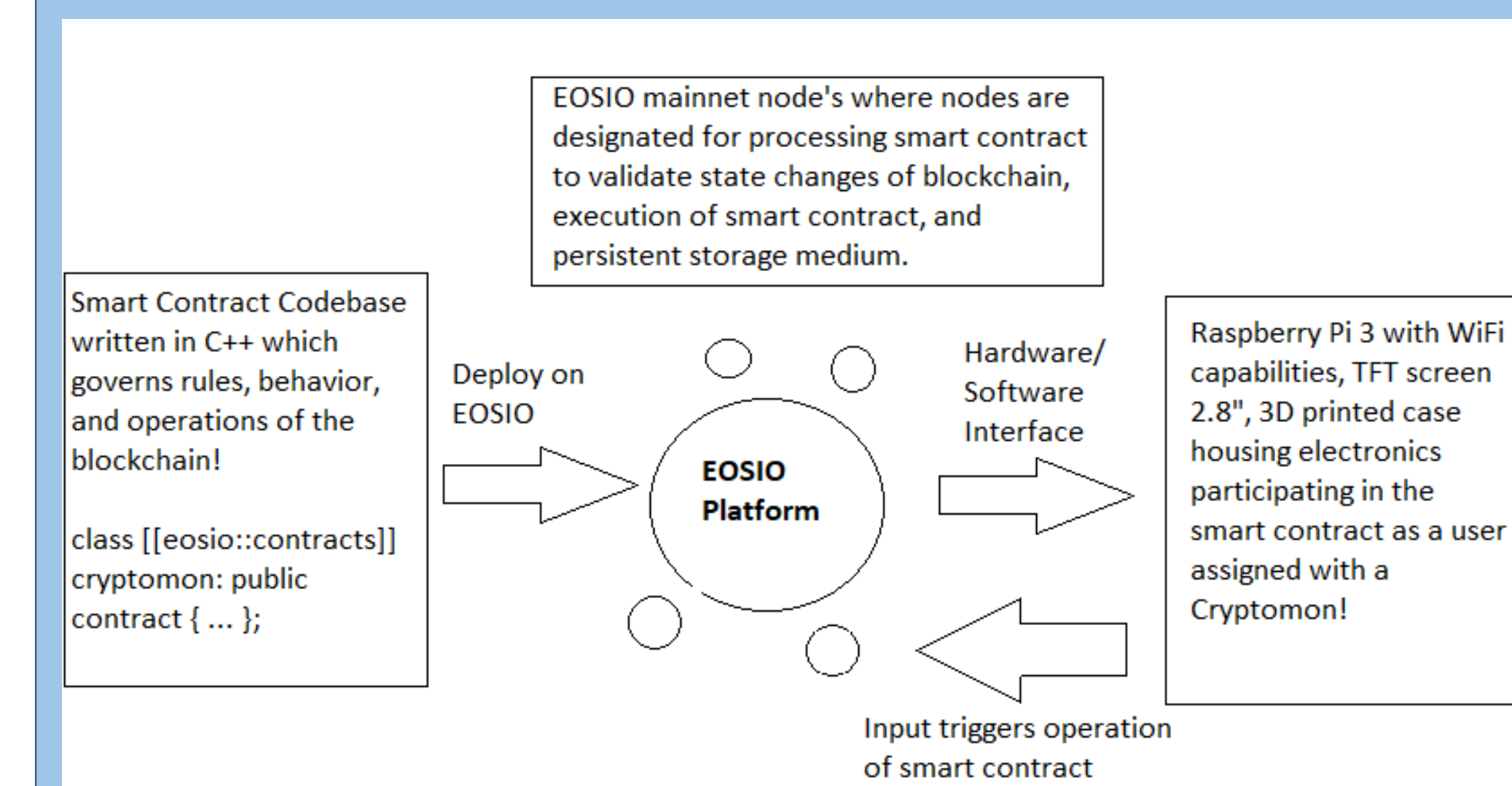
Raspberry Pi 3, TFT LCD monitor, Buttons, Plastic Casing, EOSIO toolchain

References

- [1] Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System," 2008. [Online]. Available: <https://bitcoin.org/bitcoin.pdf>. [Accessed November 13, 2019].
- [2] EOSIO, "EOS.IO Technical White Paper v2," March 16, 2018. [Online]. Available: <https://github.com/EOSIO/Documentation/blob/master/TechnicalWhitePaper.md#background>. [Accessed November 13, 2019].
- [3] WAX.io, "Inside the Virtual Item Economy: How True Ownership of In-Game Digital Items is the Future of the \$100 Billion Video Game Industry," December 7, 2018.

Software/Hardware Design

For the contract, multi-index table structures "players", "cryptomons", and "market" are defined. Functions (setters/getters) of these tables are necessary to manipulate or aggregate data relevant to user processes. Devised a transfer function to send currency for data or data for data where data is the Cryptomon. For GUI, it uses eosjs. For hardware, created circuit with buttons, Pi, and display monitor.



Accomplishments & Future

This quarter, AntChain successfully developed core logic of contract and deployed it on a local blockchain for testing intended functionality. Created the abi file that corresponds with contract so that UI program can interface with the contract! In the future, the development phase will continue with refining game design, blockchain constraints, and finish implementation of both contract and UI. Then, port relevant program files to PI, creating the portable device, and testing the hardware!