Inspiration

Each year, there are millions of people seeking for jobs, millions of jobs needing employees, billions of US dollars and huge labor cost being invested for job recruitment. In another aspect, there is a truth that everyone has talent in his/her specific field. Due to lack of information many people cannot find their most suitable job so that they cannot show their talent in working, which results in unhappy life for employees and low labor productivity for organizations.

The traditional Web2 platforms such as Linkedin, Meetup, etc. have somehow successed on their job of connecting employees and employers. However, using these platforms users must aware that they may be tradeoff the risks relating to their privacy data (such as user data leakage, illegal selling of user data). More importance, these Web2 platforms are not smart and decentralized enough to become labor hubs for matching talents. Curriculum Vitae (CV) of labors are not certified and thus being unreliable source of information for employers on deciding who will be most suitable for their provided job positions.

Inspired from these truths, we develop Smart CV chain (SCV-chain) as a labor hub for matching talents to the appropriate job positions. SCV-chain aims to help organizations finding the right talent for their provided job at low cost for recruitment, and employees easily finding job position most suitable for their talents and skills. By such way, SCV-chain aims to contribute on building up a smart and happy society.

What it does

SCV-chain allows the following things to be happen (Fig. 1):

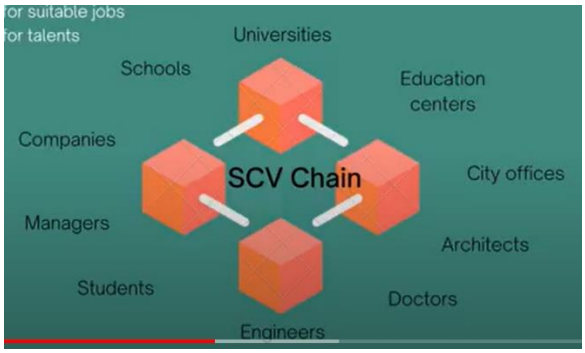

Fig. 1: SCV-chain overview

- ✓ Individual users (employees) create and manage CVs by themselves, therefore they can get-off the risk of privacy issues
- ✓ Organization and individual users can make business by becoming validators or certified entities (CEs) for certifying CV/certificate information of users in network.
- ✓ Organizations broadcasts job position information to individual users
- ✓ Organizations are recommended a large number of reliable CVs suitable for their provided job so that they can find the right talent at low cost for recruitment
- ✓ Thanks to the talent matching mechanism of SCV-chain, employees can find and apply for job position most suitable for their talents and skills

How we built it

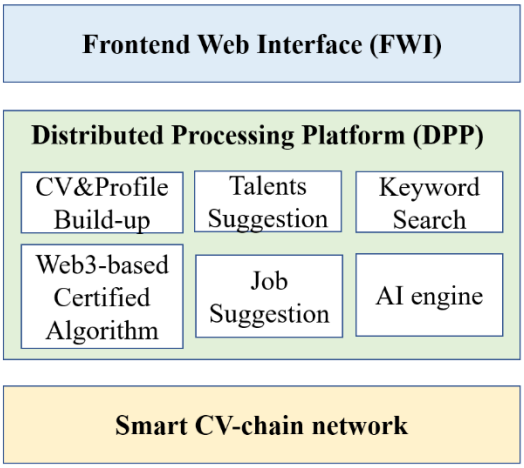

Fig. 2: Project Platform Overview

Fig. 2 shows the overview of system. It includes three main parts: Smart CV-chain (SCV-chain) network, Distributed Processing Platform (DPP), and Frontend Web Interface (FWI).

- SCV-chain network: This is the main component of the system. It is a decentralized blockchain network that records the reliable CV information of users, as well as profile of organizations into a blockchain ledger named as SCV-chain. The platform allows individual users to create their own CVs, allows a CV item to be certified and uploaded, allows organizations to create and broadcast their recruitment job information, and allows individual users to apply for job. We develop the SCV-chain by using Substrate platform and Rust programing language. The BABE and GRANPA consensuses are employed to secure the network.

- Decentralized Processing Platform (DPP): This platform connects the user interface with the SCV-chain. The DPP does the following tasks. 1) It collects CV items of users from SCV-chain ledger and builds up a user-friendly CV and/or profile from these items if there is a request to view CV. 2) It runs a Web3-based Community Evaluation Algorithm (W3CEA) to certify a specific piece of CV information (CV item) of users. 3) It implements Keyword Search engine and Artificial Intelligent (AI) engine to search for CVs best matched to a job position and job positions best matched to a CV. We develop the DPP by using several programing language such as Java Script, ReactJS, Python, NodeJS, etc.

- Frontend Web Interface (FWI): This is a user-friendly interface so that individual and organizations can interact with our system. It is developed by using Web programing language such as HTML, ReactJS, etc.

Challenges we ran into

The most four challenges we have been facing during our development process, and our proposed solutions for the challenges are as follows.

Challenges #1: How to provide reliable source of CVs?

We provide two solutions: First, organizations such as universities, education centers, companies may decide to become certified entities (CEs) of the network. These CEs certify CV items of their belonging students or employees. Second, we introduce Web3-based Community Evaluation Algorithm (W3CEA) to

further provide reliability of data. The W3CEA performs two tasks: 1) W3CEA judges the reliable score of CEs by utilizing the history data related to these CEs. 2) W3CEA provides reliable score of new broadcast CV items. To do so, W3CEA allows organization and individual to become validators. Validators provide score of CV items. And W3CEA calculate CV reliable score from input data such as score provided by validators, and relationship between validators and content of CV item. For example, CV item such as "Mr.A has been student of university B from yyyy to yyyy". Then, W3CEA may consider the relationship between validators and university B as an input data for computing the reliable score of that CV item. \

Challenges #2: How to broadcast the CVs to organizations but also protect users privacy?

To address this challenge, we propose a new method named as **CV Delivery Mechanism (CDM)**. The CDM appropriately combine symmetric cryptography algorithm such as advanced encryption Standard (AES) and asymmetric cryptography algorithm such as Rivest–Shamir–Adleman (RSA). The CDM allows CVs of users and user privacy data could be encrypted for security purpose. However, some specific users and organizations may be allowed to see these encrypted data without the need of delivering the encrypted key.

Challenges #3: How to match talents to a job position?

We provide two stages of talent matching. The first one is Keyword Search Engine which match the CVs to most appropriate job position based on keyword matching. The second is to use AI engine to further enhance the accuracy of talent matching result.

Challenges #4: How to make the system operate smoothly?

We propose an appropriate system operating protocol, a unique data structure, and a list of smart contract functions.

Accomplishments that we're proud of

We are proud of our working team in which members are full of enthusiasm, high motivation, and everyone has talent in their specific field. We work enthusiastically and always full of respect and love towards our colleagues. We work with the mission of creating systems for supporting a smart and happy society. Some of us are good on Frontend development, some are experts on Blockchain backend development, some master blockchain technology in both Dapp development and mining hardware chip design, some have rich experience on machine learning and AI, some have talent on project manager and team leader. Thanks to our experience, enthusiasm, motivation, and love energy, we strongly believe that our project will go success as our plan.

We are proud of our Web3-based Community Evaluation Algorithm (W3CEA) that leverages community relationships to corroborate information so that the SCV-chain will provide reliable source of truth of CVs. Therefore, the participant of government organizations as the purpose of certifying CV contents is welcomed but not a mandatory.

We are proud of having a clear and high motivated roadmap for our project. We know what we should do next to bring SCV-chain to community and benefit society. We can imagine a bright future for our SCV-chain system. It will success far beyond the current Web2 platforms such as Linkedin, and Meetup. Success is just a matter of time. And your support helps time to success becomes much shorter.

What we learned

We have learned Blockchain technology in both Dapp development and mining hardware chip design. We have learned Substrate platform and several programing languages such as Rust, Solidity, Python, JavaScript, ReactJS, etc. We have learned and experience the beautiful of team working spirit.

What's next for Smart CV

The roadmap of our project is shown in Fig. 3.

We have just started the development 3 week ago. We have built a basic SCV-chain demo on substrate, and basic Web interface that allows user to interact with SCV-chain. Currently, users can add and view CV items. A simple talent matching using keywork search engine and Octopus interface are on developing. The W3CEA algorithm is testing.

2022/8, we plan to launch the SCVchain version 1 as an Octopus appchain. This is an initial completed version with features such as: add & view CV, W3CEA basic certification, add job position, apply for job, basic talent matching using Keyword Search engine.

2023/2: We release SCVchain version 2 which enhance the features such as: W3CEA advanced certification by employing AI engine, advanced talent matching with AI engine, marketing campaign for Initial Coin Offering (ICO).

2023/8: We run the ICO to get fund for further project development.

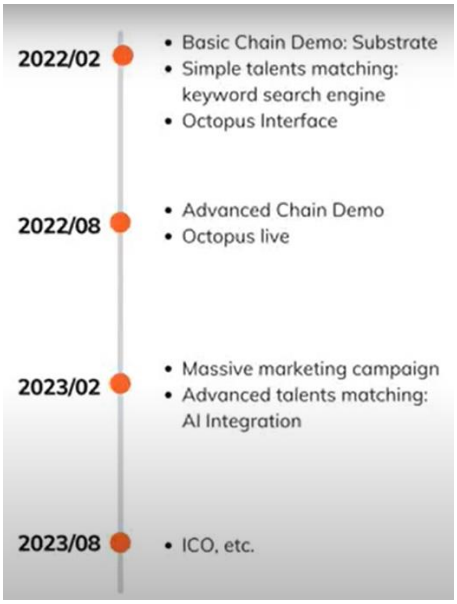

Fig. 3: Project Roadmap