WEEKLY ACTIVITY REPORT

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DATE: NOVEMBER 9, 2017 WEEK: 4 (6-10/11/2017)

PRESENT ACTIVITY

ACTIVITY SUBJECT:	Research – Study – Apply blockchain to business.
	Research – Study about Voting process.
STATUS:	95% - Understand the concept and how to apply it.
	100% - Understand the concept and created a sample voting process using blockchain technology.
RESULT:	PPTX: Introduction of E-Voting System using Blockchain Technology for Bosch.
	DOCX: Things are understand after researching (personal)
	Try Corda framework but stuck in proxy network at Bosch.
HOURS:	32 hours

SUPERVISOR NAME: LE NGOC SON SIGNATURE:

NEXT ACTIVITY

ACTIVITY SUBJECT:	Learn to use Visual Studio Team Services to manage the project
	Improve the knowledge of blockchain and update the voting process.
	Try to fix the proxy problem and run some example.

SUPERVISOR NAME: LE NGOC SON SIGNATURE:

E-Voting using Blockchain Technology

Introduction

- Bosch is interesting about Blockchain technology and want to have a R&D project to figure out the benefits of using Blockchain technology in the future. This project is aiming to create a voting system using Blockchain technology.

Voting: Tradition & Blockchain

- The current voting system (traditional or electronic method) have some critical problems such as Privacy, Trust and Robustness. These method needs a third-party to collect and audit all the ballots of a vote or election. The users have to believe that their ballots will be counted, unchanged and undisclosed. Moreover, all of the ballots will be collected and stored in one place, which means if there is any bad thing happened (disaster, power cut, …) All of the data will be lost and can't be recovered. It's also cost more time and resources to run these voting system.
- In these day, people care more about their privacy and want to know everything relate to them, not just believe some third-party who claim they will do what they say. The blockchain technology is a very potential way to solve this kind of problems. The blockchain technology provides a decentralize consensus, which means people who participate in the blockchain network can see, check and determine all of the input information (called Transaction), so the data will be verified by many people and the trust in this blockchain network is increasing higher. The blockchain will also provide a ledger to store all of transaction was happened in the network. The transactions will be encrypted into a block and linked to a previous block to create a chain (that's why it's called blockchain). All participants will have a copy of this ledger and update it in real-time so that is impossible to fake or changed the data. Once again, the trust is increasing. To protect the user privacy, we can't only see the address of the user (has been encrypted) and the information of a block so no one can detect who is the owner of this

transaction, this attribute is perfect for the voting system, anonymous. Last but not least, the Robustness. All the network has a copy of the ledger so the way to lose all of the data is hardly to happen. There only need at least 2 participants (node) alive, so that the others people can copy it and the network will continue work, no more damage or interrupted.

Conclusion

- Let's talk about voting system. From my perspective, a voting system should have 2 attributes:

  + Anonymous: A voter can't tell the truth, what they feel or what they want to the people who are in higher position, it's impolite and may cause a conflict in the work environment.

  + Transparency: Everyone wants to know the result of their work so when they vote for something, they want to know if their votes are counted, unchanged and the result of it. It's fair for anyone to see what they have done and earn what they deserve.

- After researching for a week, I feel that the blockchain technology is very powerful and I should give a try to learn and develop a voting system based on it. However, there is some challenges for me when using this technology:

  + Size of networks: The trust of the blockchain network really depend on its size, the more participant on the network, the more trust it have.

  + Technology: There is a lot of technology can be used to build a blockchain system but it may hard to understand for the newbie and less tutorial to follow and learn about it.

  + Speed: Because the blockchain is decentralize consensus so it will take time for every nodes (participants) to verified it.

  + People behavior: The input data in blockchain technology is essential. If the input is wrong, then all of the transaction base on that data will be wrong and the blockchain is unless at the point. Moreover, the blockchain will be needed to explain to the user (which is not necessary for other technology like Web

services, Server-Client, …) to convince them why the blockchain can protect they information and how they can trust other people in this network.

- Luckily, in this project, I focus on building a local voting system which won't be affected by the speed and size of network. I may have to fight with this issues when the system is required to extent.

Currently Problems

- Create a process but not so specific, need to install a sample blockchain system or application to develop and design a process more detail.
- Have trouble with the Bosch proxy, can install a sample of Corda framework at home but not at Bosch, need to work more to find solution.
- Less of tutorial about learn and build private blockchain system, have to start searching deeply, only see Corda and Hyperledger Fabric frameworks tutorial but hard to start with.
- Study and Work in the same time maybe toughed sometimes, I may adjust it a little bit to fit with Bosch policy without losing any salary.
- Doesn't have a tool to manage our project, Visual Studio is a potential tool and we will give a try to see how it works.