

**CAPSTONE PROJECT 2**

**DEMARK - DECENTRALIZED MARKET**

Proposal document

Version: 4.0

CODE: DEMARK-2.0

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**INTERNATIONAL SCHOOL**

# **Project Information**

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| --- | --- | --- | --- | --- |
| **Project acronym** | DEMARK | | | |
| **Project Title** | Demark - Decentralized Market | | | |
| **Start Date** | 24-Feb-2019 | **End Date** | 15-May-2019 | |
| **Lead Institution** | International School, Duy Tan University | | | |
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# **Proposal Document**

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| **Team Information** | **Name** | **Role** |  |
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| **Date** | 28-Feb-2019 | **Filename** | DEMARK\_PROPOSAL\_4.0.docx |
| **Access** | Project and Duy Tan University Program | |  |

# **Document History**

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| Document History | | |
| **Version** | **Date** | **Comments** |
| V1.0 | 10-Sep-18 | * Initialize document |
| V1.2 | 20-Sep-18 | * Update plan |
| V2.0 | 17-Oct-18 | * Update context diagram and description * Update project plan |
| V2.1 | 26-Oct-18 | * Update diagram and feature |
| V3.0 | 3-Nov-18 | * Official document (Capstone 1) |
| V4.0 | 28-Feb-2019 | * Update new features. |

# **Document Approvals**

​The following signatures are required for approval of this document.

|  |  |  |
| --- | --- | --- |
| Man Nguyen Duc  *Mentor* |  | Date: |
| Ha Truong Van  *Product Owner* |  | Date: |
| Phuong Tran Nhat  *Scrum Master* |  | Date: |

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# **Introduction**

## Purpose

* The document provides an overview of the project includes the purpose and scope of the project.
* In addition, identify business needs, problems or situation related to the initialization and construction projects.
  + Provide a solution for business needs and give the overview of system architecture.
  + Provide an overview of resources, schedule, risk, solution, and budget for the project.

## Scope

* + This document provides an overview of the project will be developed. It includes the description of the business background, the proposed solution, financial forecast and some constraints that involved in the project.
  + The document provides a comprehensive master plan for each phase of software development based on the processes that have been selected.
  + This document is made for senior management to put forward a proposal.

## References

|  |  |  |
| --- | --- | --- |
| **No.** | **References** | **Document Information** |
| 1 | Process | Scrum Framework https://www.scrumguides.org/ |
| 2 | Technical | Nodejs  [http://nodejs.org/](about:blank) |
|  |  | Reactjs  [https://reactjs.org/](about:blank) |
|  |  | Web3js  [https://web3js.readthedocs.io/en/1.0/](about:blank) |
|  |  | Solidity  [https://solidity.readthedocs.io/en/v0.4.24/](about:blank) |
|  |  |  |

# **Project Outline**

## Project Overview

Demark is a digital asset exchange decentralized for Universities which provides universities with the ability to collect tuition fees and other financial activities. In addition, it offers students, investors the ability to pay tuition fees electronically and the ability to communicate with other users.

## User Need

### Business Problems

In the explosive growth of Blockchain technology, which meets the need for information transparency, time-saving and fraud-protected smart solutions, and financial security. Many colleges and universities want to change the way financial management and financial-related activities, such as tuition or investment, reward student’s activities and achievements, by applying Blockchain technology.

### Business Need

* Students want to pay tuition or receive bonuses using electronic money. In addition, students want to exchange and send money to other students.
* University managers want to apply blockchain in financial activities that always face fraud in revenue and expenditure planning, to increase transparency in financial activities at the university.

### Business Constraint

* The system should be completed and handed over by December 10, 2018.
* The system should allow the holder the ability to payment of tuition fees by ETH
* The system should bonus when the holder buys a lot token.

## Prior Art

### Situation in the world.

***Top 4 trading market***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | **Binance** | **Huobi** | **Bittrex** | **Poloniex** |
| 1 | 46 pairs of altcoins | 200 pairs of altcoins | 250 pairs of altcoins | 101 pairs of altcoins |
| 2 | For beginner coin investors to join the cryptocurrency market | Investors trade often  New players | Regular trading investors (Trader) | A long-term investor (Holder), trading in large amounts |
| 3 | [https://www.binance.com](about:blank) | [https://www.huobi.pro/](about:blank) | <https://bittrex.com/> | <https://poloniex.com/> |
| 4 | WTC/BTC  NEO/BTC  BTC/USDT  BNB/BTC | EOS/USDT  ETH/USDT  BTC/USDT  XRP/USDT | BTC/USDT NEO/BTC XRP/BTC ETH/BTC | BTC/ USDT ETH/BTC  ETH/USDT  STR/BTC |
| 5 | Exchange | Exchange – Margin – Lending | Exchange | Exchange – Margin – Lending |

Legend

|  |  |
| --- | --- |
| 1 | Number of transaction coins |
| 2 | User |
| 3 | Address |
| 4 | Top 4 pairs of coins |
| 5 | Method |

* Since the inception of Bitcoin, it has been a market boom. It was the first application of Blockchain technology and was created to solve the transaction problems intelligently without the middleman like banks.
* The market for cryptocurrency is very young, since the opening of the first trading platform in 2010 and for the whole history of its development was characterized by high volatility and lack of any stability. The market for cryptocurrency is one of the fastest growing markets to date.

### Situation in Vietnam

In Vietnam, *vicuta.com*, *remitano.com*, and *bitcoinvn.com* are also trading platforms that focus on crypto.

# **Proposed Solution**

* 1. **Vision Statement**

Demark is a digital asset exchange decentralized for universities which bring to them the ability to use cryptocurrency in financial activities such as pay tuition fees, invest, exchange the token of the universities, etc. Unlike the old system of universities, students are only able to pay money through the services of a bank or directly at the cashier. The universities not only allow payment by traditional methods but also giving to users the ability to pay by cryptocurrency. Moreover; it also allows users to exchange digital assets with other users and attract investment from investors and businesses in a transparent manner, saving time and convenience for the users.

* 1. **System context diagram**

**E:\DTU\CAPSTONE\CAPSTONE 2\DIAGRAM\Demark_Context_Diagram_4.0.pngDemark_Context_Diagram_4.0**

*Figure 1: Demark System context diagram*

* 1. **System context description**

***There are three main actors in the system:***

* **Holder**: the normal user of the system who has the basic functions of the system such as buy tokens, transfer tokens, withdraw, exchange token to the other users, get reward.
* **University**: A user who is responsible for the financial activities of the University such as deploy their tokens to the system, depositing and reward others. He has all the features of a holder.
* **Administrator**: A user who is responsible for manage the token of system. He has all features of holder and university.
  1. **Used Technology**

**Language Programming:** *JavaScript, Solidity.*

**Operating Environment:** *Web browser (Google Chrome, Firefox, opera)*

**Extension support:** *MetaMask*

**Frameworks / Libraries:**

* *Reactjs*
* *NodeJS*
* *Truffle, Ganache*
* *Web3JS*
* *Bootstrap 4*
* *Webpack*
* *Express*
* *Ox.js*

## Deliverable

* Research documents about Blockchain, Ethereum, ERC.
* Website DEMARK which allows users to exchange and purchase tokens.

## System Features

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Feature name** | **Actor** | **Development Version** |
| **1** | Get Reward | Holder | 1 |
| **2** | Withdraw | Holder | 1 |
| **3** | Buy Token | Holder | 1 |
| **4** | Transfer | Holder | 1 |
| **5** | Deposit | Holder | 1 |
| **6** | Bonus | University |  |
| **7** | Deploy Token | University | 1 |
| **8** | Manage Token | Demark Admin | 1 |
| **9** | Manage ICO | Demark Admin, ICO Creator | 2 |
| **10** | ICO | Holder | 2 |
| **11** | Token Exchange | Holder | 2 |

# **Project Plan**

## Scrum Framework

Káº¿t quáº£ hÃ¬nh áº£nh cho scrum

Scrum is an iterative and incremental agile software development framework for managing software projects and product or application development.

Scrum focuses on project management institutions where it is difficult to plan ahead.

Mechanisms of empirical process control, where feedback loops that constitute the core management technique are used as opposed to traditional command-and-control management.

Its approach to planning and managing projects is by bringing decision-making authority to the level of operation properties and certainties.

**The benefit of the methodology:**

* *The project can respond easily to change.*
* *The customer gets the most beneficial work first.*
* *Work done will better meet the customer’s needs.*
* *Improved productivity. Ability to maintain a predictable schedule for delivery*

* 1. **Human Resource**

|  |  |  |  |
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* 1. **Master Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Task name** | **Duration** | **Start** | **Finish** |
| 1 | Initial | 7 | 24-Feb-2019 | 3-Mar-2019 |
| 1.1 | Establish project team | 1 | 24-Feb-2019 | 24-Feb-2019 |
| 1.2 | Project’s Kick-off Meeting | 1 | 25-Feb-2019 | 25-Feb-2019 |
| 1.3 | Discuss about project idea | 2 | 26-Feb-2019 | 27-Feb-2019 |
| 1.4 | Update the documents | 5 | 28-Feb-2019 | 3-Mar-2019 |
|  |  |  |  |  |
| 1.5 | Research Technical | 8 | 28-Feb-2019 | 3-Mar-2019 |
| 2 | Development | 70 |  |  |
| 2.1 | Sprint 1 | 14 | 4-Mar-2019 | 17-Mar-2019 |
| 2.2 | Sprint 2 | 14 | 18-Mar-2019 | 31-Mar-2019 |
| 2.3 | Sprint 3 | 14 | 1-Apr-2019 | 14-Apr-2019 |
| 2.4 | Sprint 4 | 14 | 15-Apr-2019 | 28-Apr-2019 |
| 2.5 | Sprint 5 | 14 | 29-Apr-2019 | 12-May-2019 |
| 3 | Final Release | 3 | 13-May-2019 | 15-May-2019 |
|  | **Duration** | 80 |  |  |