**Project Plan**

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# **1.Introduction**

This project aims to develop and implement a database that will secure patients medical records based on the ethereum blockchain.The development team consist of 8 Kennesaw State University students, each having different skills and preferences. We plan to use this to our advantage by performing a skills audit and utilizing individual’s strength.

The project will be coordinated using the agile method, an approach to software management which assists teams in responding to the unpredictability of developing software. It uses incremental, iterative work sequences that are commonly known as sprints. Our work will be split into one to two weeks sprints wherein a goal will be identified, worked towards and be completed.

# **2.Business Needs/Requirements**

As patient survival outcomes increase with the development of new medical technology, so too do the number of medical providers they see. It is becoming increasingly more common for medical professionals in specialized fields to require their patients allow only them to provide care and prescription writing services for their particular specialty and prescription. The idea of “owning” that particular indication prevents the overlap of treatment and is done in the patient’s interest but comes with the side-effect of creating a growing number of discrete providers and potential prescriptions seeing one patient but unaware that they are all treating that patient for illnesses that may be related.

While the patient is ultimately responsible for what other doctors and specialists do or not know about their medical history, it is often the case that they want each provider to have access or perhaps believe they already do when the reality is their medical records are not easily shared among the many different Electronic Health Record systems that exist between different clinics. It is too frequent the case that major issues are overlooked simply because information that existed but was not wholly available to a new caregiver (often the case in hospice and other home care environments) or emergency department visit.

The system used for decades in the United States forces one person to provide duplications of their insurance, medical history, allergies, current medication, etc., to each new medical facility. Aside from insurance and identification these are all up to the memory of the patient and the establishment of trust between that patient and the other doctor. It is possible to allow new offices to request medical records from previous care but shows another step in this process of information duplication. It would be far more advantageous for both patient and provider to have a single EHR for each patient which could be viewed and amended by qualified personnel, guaranteeing accuracy and completeness.

Blockchain technology has emerged as an ideal candidate for the storage of medical information. It is well-adapted for storing information securely and privately and has strong standards for authentication. Data in such a record will be immutable--which is ideal in a medical setting as new information may mean a patient’s health status has changed but there should always be a continuous record of previous history in order to determine related pathologies. If adoption were successful, a blockchain EHR solution could also prove useful in combating drug seeking behavior by allowing providers to view the number and amount of current prescriptions and where they are being filled. Having a blockchain that stores a patient's medical record will solve a major problem in most part of the world, especially in underdeveloped countries where paper records are mostly used. The problem with a paper record arises when a patient needs access to his/her medical record in a different hospital, especially a hospital in a different country. Having patient records in a blockchain will eliminate that problem, making the patient’s record accessible anywhere in the world.

**Requirement**: Moving patient’s medical record from paper record is not something that can be achieved overnight. There will have to be a lot of data collection. For each patient's who is newly subscribed to our service, representatives will have to physically collect all the paper records from each hospital the patient has visited.

# **3.Product or Solution Overview**

We are developing an innovative personal medical record which is being built on the ERC-20 Ethereum platform. It will follow the guidelines specified in HIPAA. Access to the medical record is secure and fast, making it highly viable in emergency rooms and any other situations where quick and secured access to medical records is necessary. Access to the medical record requires qualified personnel.

# **4.Major Features**

The features of our project will provide time conservation for patients and medical faculty. We also implement a more secure way of maintaining your medical records. The patient will have control over their medical record in a safe digital way while also providing accessibility to any emergency department as needed. We will be providing data accuracy as well as the ease of data transfer for medical purposes.

# **5.Project Process Description**

The agile method will be used as mentioned in the introduction. The following defines reason why the team chose this approach:

* Encourages a higher level of communication between team members.
* Problems can be identified quickly and dealt with.
* Allows the group to be more engaged and updated with current development initiatives.
* Secures a more transparent development process.

The tools required for the development of the project are very clear and mention below

*Tool Hypothesis:*

* Solidity programming language
* Remix - Solidity IDE
* Ganache
* MetaMask
* Test Cryptocurrency
* Atom
* Web3.js
* Node.js

# **6.Project Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date (**YYYY-MM-DD) | **Milestone** | **Deliverable** | **Remarks** |
| 2019-03-03 | In Progress | Project Plan |  |
| 2019-03-10 | Not Started | Design Document - Introduction and System Overview |  |
| 2019-03-17 | Not Started | Design Document - System Architecture |  |
| 2019-03-24 | Not Started | Design Document - Detailed Design & Human Interface |  |
| 2019-03-27 | Not Started | Design Document - Completion |  |
| 2019-03-28 | Not Started | Code/Application Development, Building Presentation |  |
| 2019-04-28 | Not Started | Code/Application Completion |  |
| 2019-04-29 | Not Started | Presentation |  |

# **7.Scope and limitations**

This project aims to offer a solution to the issues of redundancy, insecurity, incompleteness, lack of portability, and ownership with regards to a person’s Electronic Health Record by means of storing that information on the blockchain. It will be accessible at any time and fully linkable to any and all Electronic Health Records. Health consumers will be able to communicate with all medical personnel (doctors, nurses, ancillary-care providers and administrators) via a single easy-to-use platform, from any online media (PC, tablet or smartphone) to facilitate faster transfer of necessary medical information, thus enabling the most complete, relevant, decentralized, and efficiently-delivered medical care.

The implementation of Fast Healthcare Interoperability Resources (FHIR) and Health Insurance Portability and Accountability Act (HIPAA) standards are recognized as a necessary part of such secure EHR, but will not be considered as within the scope of this project, as they are only a local variant of a broader swath of compliance standards. Not included in this effort will be a monetary-transfer component such as Bitcoin, Bitcoin Cash, Litecoin, etc. that exist for the purpose of transferring spendable value from one party to another. This resulting product will be of an Ethereum ERC-20 based, “Smart Contract” structure.

<http://hl7.org/implement/standards/fhir/>

https://www.hhs.gov/hipaa/index.html