**SECURE MEDICAL TRANSCRIPTION**

2022

**USING BLOCKCHAIN**

**REVIEW - III**

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**SYSTEM SPECIFICATION**

**HARDWARE SPECIFICATION**

* Processor - Intel® Core™ i5-2450M [CPU@2.50GHz](mailto:CPU@2.50GHz)
* Installed Memory (RAM) - 4.00GB
* System Type - 64-bit OS, x64-based processor
* Storage - 500GB HDD

**SOFTWARE SPECIFICATION**

* Operating System - Microsoft Windows 10 Pro
* Editor - Microsoft Visual Studio Code

**TOOLS, FRAMEWORKS, LIBRARIES**

* **Python**

Python is an interpreted, high-level, general-purpose programming language. Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including procedural, object-oriented and functional programming. Python is the most popular language, suitable for a variety of tasks in machine learning. It supports variety of frameworks and libraries to work with data. It will serve as backend along with Flask.

* **Flask**

Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions. However, Flask supports extensions that can add application features as if they were implemented in Flask itself. Extensions exist for object-relational mappers, form validation, upload handling, various open authentication technologies and several common framework related tools.

* **SpeechRecognition API**

SpeechRecognition API is a library for performing speech recognition, with support for several engines and APIs, online and offline. Recognizer() class is initialized in order to recognize the speech. In this project Google Speech recognition Web API is used.

* **SQLite3**

SQLite is a C-language library that implements a small, fast, self-contained, high-reliability, full-featured, SQL database engine. As such, it belongs to the family of embedded database. It is the most widely deployed database engine, as it is used by several of the top web browsers, operating systems, mobile phones, and other embedded systems.

* **HTML5**

Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. Web browsers receive HTML documents from a web server and render the documents into multimedia web pages. It will serve as frontend along with CSS and Bootstrap.

* **CSS3**

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.

* **Bootstrap**

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS and (optionally) JavaScript-based design templates interface components.

**SYSTEM STUDY**

**EXISTING SYSTEM WITH LIMITATIONS**

Medical transcription (MT) is the manual processing of voice reports dictated by physicians and other healthcare professionals into text format. Medical data are sent to third party organization for medical transcription. Since data are passed through third party, there is a possibility of breach in medical records. Humans make errors, mistakenly misunderstand some words and it may affect the quality of the medical report. Medical transcription companies are paid extra to complete the process as soon as possible.

**Limitations**

* Voice reports that are sent to third party organization for medical transcription process has high risk of confidentiality breach.
* Usually, it takes hours of typing to complete one medical record.
* This is an expensive process and a time-consuming task.

**PROPOSED SYSTEM WITH ADVANTAGES**

To reduce time and money, the medical transcription process can be automated using SpeechRecognition API, which converts voice reports into text format. The goal of blockchain is to allow digital information to be recorded and distributed, but not edited. In this way, a blockchain is the foundation for immutable ledgers, or records of transactions that cannot be altered, deleted, or destroyed. The medical record is stored across the distributed network as blocks and combined together.

This solution is deployed as web application using Flask web micro framework. This process is completed within 5 minutes thus saving enormous amount of time and money.

**Advantages**

* Since SpeechRecognition API is used to automate the medical transcription, time and money can be reduced.
* Medical records are securely stored in Blockchain thus making it impossible for any confidentiality breach.
* It will be deployed as a web application, so it makes it easy for the doctor and patient to access the medical record whenever required.