Attendance Monitoring System

Abstract:

Facial recognition is being increasingly used in authentication in a vast majority of fields. In this Information era, authentication has become crucial and the need for quicker and safer ways to authenticate a user have been ever increasing. Blockchain technology is an extremely safe way to store data in the form of blocks distributed through the internet. It’s a highly disruptive technology that could potentially change all facets of society. This paper aims on using open source computer vision (OpenCV) algorithm to develop and facial-detection based Attendance Monitoring System that is secured by the use of blockchain. It will not just automate the attendance process but also provide impenetrable security to said system.

Problem Definition:

Inefficient traditional way to conduct attendance and lack of accuracy and security in existing attendance monitoring systems.

Motivation:

* The traditional approach of conducting attendance is rather time consuming and often results in inaccurate results.
* There is some work being done in to automate this process but all the current systems are either impractical, inaccurate or just too expensive to set up
* They all also have one more major concern, they are not secure enough to be used in a big institution where the students are extremely technically literate.

Objectives:

* To implement a real-time Attendance Monitoring system:

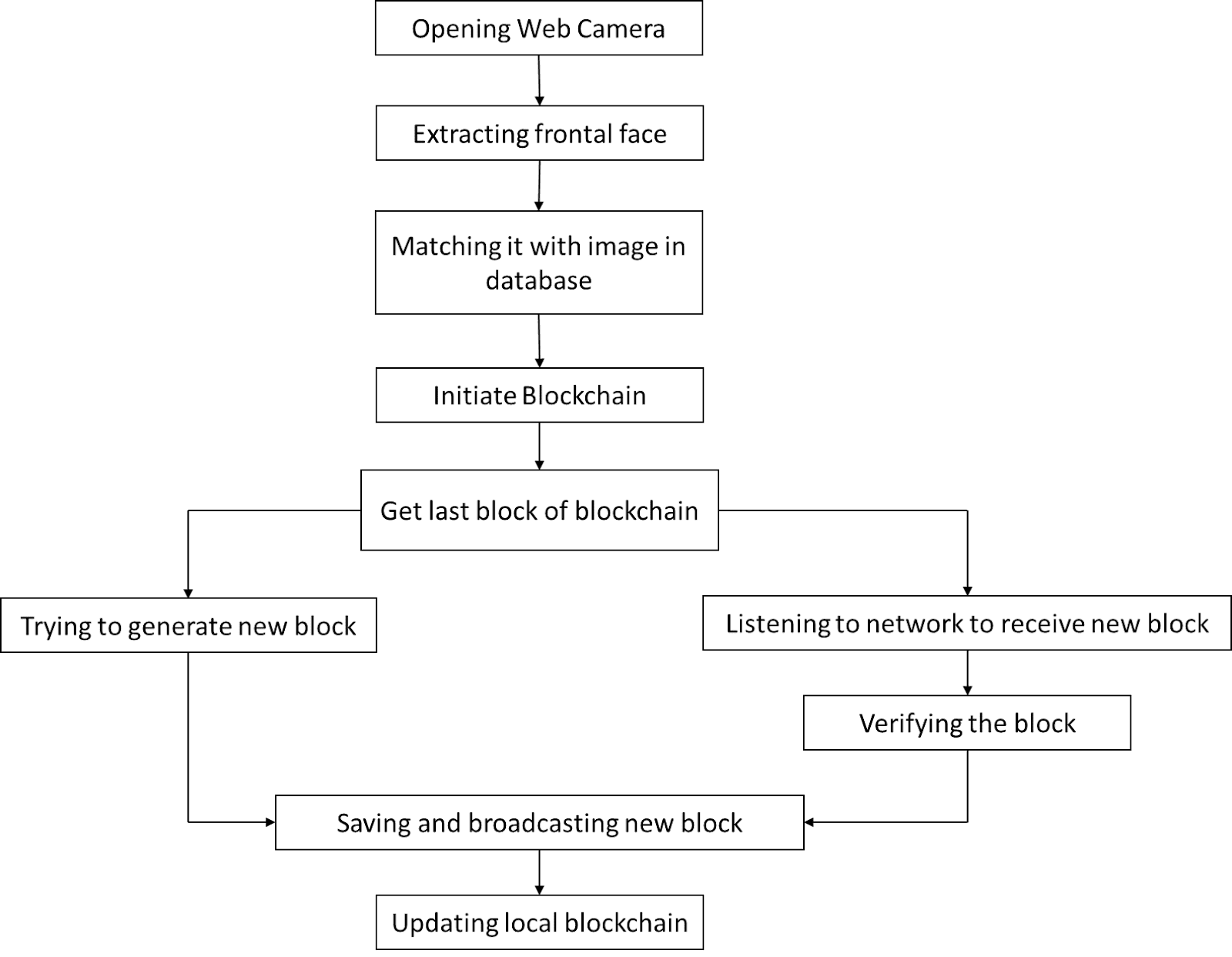
To facilitate the faculty with an automated system that will seamlessly monitor the attendance of a given time period for them by using an esp-32 camera and feeding the video to a trained facial recognition model identifying the student.

* To secure the attendance records using blockchain technology:

To create a database storing the attendance records in a distributed fashion on the blockchain network so as to avoid intrusions and unauthorized access.

* To create a dashboard for the faculty to monitor/edit the records:

To create a user-friendly UI for the faculty to add/delete/edit the records stored on the blockchain network in case of any technical mishaps/errors.

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