PROJECT TITLE

FIR MANAGEMENT SYSTEM ON HYPDERLEDGER BLOCKCHAIN

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Under the Guidance Of

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SUMMARY

In India, police department is considered to be most corrupt department in our society. The most common problems are illegal gratification, whoosh money for tampering of FIR (First information Report) by police officials in favour of either accused or victim. There are several instances of predated FIR done by police officials to manipulate facts in ongoing investigation. Police also try to manipulate the fact that are mentioned in the FIR by appending information at later stage. In some cases, it is also reported that police wipe of the FIR that it registered earlier and then claim at later stage that FIR was not registered at all.

Once the FIR has been filed, the police try to investigate the matter by collecting evidences and witnesses' testimony and file charge sheet to register a case. But as the case hearing is scheduled at a later date sometimes police tamper with the evidence and try to make a false excuse that evidences have been lost during the interval.

Our implementation tries to overcome such issues by making FIRs and the related documents pertaining to case immutable.

INTRODUCTION

In order to overcome this problem, we propose that the FIR be put on the blockchain to make the FIRs immutable. The parties involved will be accused, victim, Police and Judiciary. Whenever a document is submitted by the parties it can be verified by other parties. Ownership of change in any document will be transparent, i.e., if any one makes a change in FIR or submitted documents, the other parties can see who did that.

SYSTEM ARCHITECTURE

We will use Hyperledger composer to build our blockchain backend. Our web application (client side) will interact with the blockchain system with the help of REST APIs. Client side will be build using HTML, CSS, JavaScript, Ajax etc. We will use the database which is implicitly provided by Hyperledger. Currently, we have decided to run all the nodes on a single machine using docker container. Our future goal is to run it on multiple machines on the same network. Our model file will contain following- participant, asset, transaction.

- PARTICIPANTS
  - Victim/Complainant
  - Accused
  - Police
  - Judiciary
  - Forensic and Post mortem Department
- ASSETS
  - Interim FIR proposal (submitted by victim)
  - Registered FIR
  - Evidences and Witness testimony
  - Case charge sheet.
- TRANSACTIONS
  - Submit Interim FIR proposal.

        - Reject FIR
        - Approve FIR
        - Submit witness testimony
        - Submit evidence
        - Inform victim
        - Inform accuse
        - View FIR
        - View evidence
        - Close Case
        - Submit charge sheet
- ORGANISATION
    - Client
    - Police
    - Judiciary
    - Forensic
- ENDORSER
    - Judiciary

FEATURE LIST

- Victim can raise interim proposed FIR from our web application. Police can view this newly raised interim FIR on their login portal.
- Police will authenticate the FIR and decide to reject or accept the FIR with appropriate comment. Once FIR is rejected the police will inform the Victim why the FIR has been rejected. If FIR is accepted then police will approve FIR and append IPC sections to the FIR report send a copy of FIR to accused and victim.
- Against FIR forensic department will provide evidences. We will be considering only a single organisation for providing evidences like post mortem report, forensic evidences etc
- Police will file the witness testimony
- If police are able to collect the evidences and witnesses then it will file a charge sheet so that a case can be opened by the judiciary (future scope) else if no evidences are found then police will close the Case due to lack of evidences and inform the user.
- Judiciary can view the proposed FIR that were rejected, Approved FIRs, Evidences and Testimonies and Charge sheets filed by FIR. If anyone tries to tamper with these assets then it will be reported to judiciary thus making these assets immutable.

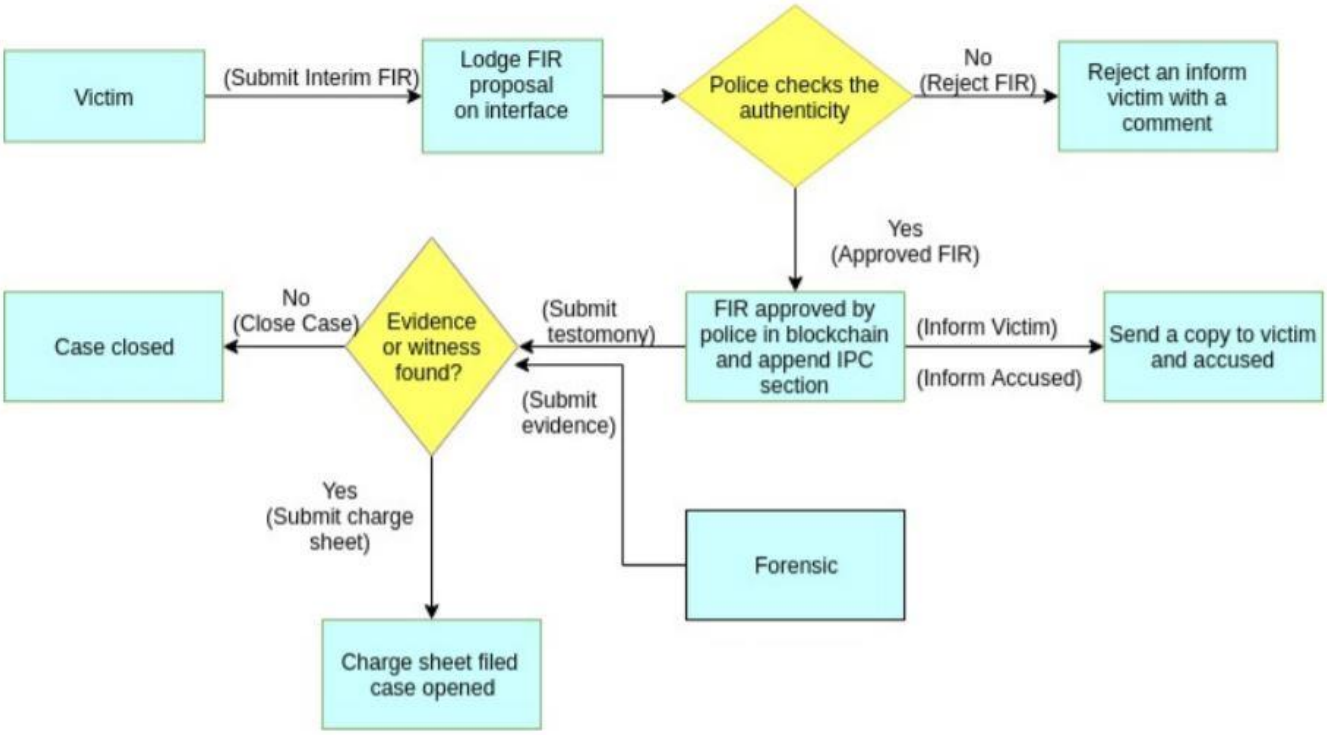

Fig. FLOW CHART OF FIR MANAGEMENT SYSTEM

ADVANCED FEATURES (implantation depends on the time if present)

This system can be further extended to case proceedings done by judiciary. This include

- Transaction to perform hearing. This will add the case proceedings on the blockchain and new evidences produced during hearing in blockchain
- Verdict Transaction- To register the final verdict about the case on blockchain.

TESTING

We are using Hyperledger composer which has inbuilt testing tool which supports three types of testing: interactive testing, automated unit testing and automated system testing. It has a command-line interface that provides commands allowing you to easily run interactive "smoke tests" to ensure the deployment was successful. This also makes it easy to execute tests in a CI/D system.

System tests can also be created using Docker Compose and Mocha/Chai. You can start a runtime and deploy your business network definition, then programmatically create assets, submit transactions and inspect the state of asset registries.

TIMELINE

- 30/03/2019- setting up development environment by 30th March.
- 1/03/2019- Making the complete "Model file" declaring the assets, participants, transactions and events (if any).

- 10/03/2019-Writing all the logic for the transactions and events like notifying everyone about the changes etc. in “Script files”.
- 10/03/2019-Planning to test our application and depending on the absent features we will modify the transactions.
- 14/03/2019-Completion of Project with all the functionalities tested.