

Mobile Crime Reporting System with Blockchain Based Data Provenance

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ABSTRACT

The security situation in Sri Lanka has deteriorated over time due to the low number of police personnel in the country and the authorities lack concrete to solve crime incidents since there is no proper crime reporting system. Crime incidents happen everywhere but the witness to these crime incidents nonexistence a convenient and efficient method to report them. Security challenges have increased from mere theft to carjacking attacks and to more serious and evolved challenges like murder and terrorism. With increase of smartphones in Sri Lanka, an opportunity exists because of the untapped gap of incidents reporting. The proposed solution was to develop a mobile application that can be used to report any crime incidents. The mobile application was developed on the Android platform and will integrate the use of GPS location services. It was developed concurrently with a web application developed in ReactJS language to supplements its functionality and MYSQL used as the database server. The solution has an administrative web-based backend that will be accessed by the police force to ensure they get detailed information of criminal activities. The web application was adapted the MVC architecture with object-oriented environment. In addition to that online UML tool is being used to draw UML diagrams. Thus, the mobile application comes in trend to provide a solution to the way users report crime incidents. The suggestions made by users were used to enhance the application functionality and performance. The application will allow users to report crime incidents that happen in anywhere anytime. Based on the overall statistics of user testing and evaluation, can say that the application fulfills its simplicity and usability requirement and based on the questionnaire responses, the application is generally considered easy to understand and use.

DECLARATION

The thesis is my original work and has not been submitted previously for a degree at this or any other university/institute.

To the best of my knowledge, it does not contain any material published or written by another person, except as acknowledged in the text.

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This is to certify that this thesis is based on the work of

H.M.R.P Rajapaksha under my supervision. The thesis has been prepared according to the format stipulated and is of acceptable standard.

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LIST OF ABBREVIATIONS

| | |
|----------|---|
| GPS | - Global Positioning System |
| PDA | - Personal Digital Assistant |
| CCTV | - Closed Circuit Television |
| WIFI | - Wireless Fidelity |
| SDLC | - System Development Life Cycle |
| USA | - United States of America |
| SQL | - Structured Query Language |
| DBMS | - Database Management System |
| UML | - Unified Modeling Language |
| OOD | - Object Oriented Design |
| OO | - Object Oriented |
| ERD | - Entity Relationship Diagram |
| REST API | - Representational State Transfer Application Program Interface |
| IPFS | - Interplanetary File System |
| MVC | - Model, Viewer, Controller |
| GUI | - Graphical User Interface |
| OS | - Operating System |
| ICT | - Information and Communications Technology |