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Project title: Crime Reporting and Community Alert Mobile App

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Project Idea Summary

The proposed project focuses on developing a *Crime Reporting and Community Alert Mobile Application* designed to strengthen communication between citizens and local authorities. The aim is to provide a fast, secure, and accessible way for people to report crimes, suspicious behaviour, and emergencies directly from their smartphones.

The application will include several key features such as anonymous reporting, GPS location tracking, photo and video uploads, emergency alerts, and real-time notifications. These tools are intended to make reporting easier and to encourage more people to share information that could help improve community safety.

I became interested in this topic after noticing that many people do not report crimes or suspicious activities, even when they witness them. During my background reading, I found that fear of retaliation, lack of trust, and uncertainty about how to contact the authorities are common reasons. This encouraged me to explore whether a simple mobile application could make the reporting process easier and help improve communication between the public and local authorities.

As someone interested in using technology to solve real-life problems, I believe this project has the potential to make reporting crime easier and safer for everyone. [1][2]



Figure 1: Generating image for Crime reporting APP.

Mind Map

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Figure 2 MindMap for Crime Reporting and Community Alert Mobile APP.

Task 1: Ideation & Mind Map

Crime Reporting and Community Alert Mobile App

Innovation is at the centre of this project because it practically combines existing technologies to solve a real community problem. Instead of creating completely new technology, the application brings together mobile devices, GPS services, cloud storage, and secure communication to improve how crime information is shared. According to Rogers [7], innovations are more likely to be adopted when people recognise their usefulness. This approach could therefore encourage greater community participation in crime prevention.

After exploring several possible project ideas, including a fitness tracking application and an event management system, I selected the Crime Reporting and Community Alert Mobile App because community safety remains a significant concern in many towns and cities. During my initial research, I found that issues such as knife crime, antisocial behaviour, vandalism, and delays in reporting incidents continue to affect many communities. These challenges influenced my decision to investigate how mobile technology could be used to improve communication between citizens and local authorities while supporting community safety. I believe that providing a secure and accessible reporting platform could encourage greater community participation and help improve the reporting process.

One important issue highlighted in the mind map is the range of problems that affect local communities. Delays in reporting crimes, poor communication, and concerns about personal safety can reduce public confidence. Rather than relying only on traditional reporting methods, a mobile application could give residents a quicker and more convenient way to report incidents and receive important updates. Information systems are increasingly being used to improve communication and support decision-making in public services [1].

Innovation is at the centre of this project because it practically combines existing technologies to solve a real community problem. Instead of creating completely new technology, the application brings together mobile devices, GPS services, cloud storage, and secure communication to improve how crime information is shared. According to Rogers [7], innovations are more likely to be adopted when people recognise their usefulness. This approach could therefore encourage greater community participation in crime prevention.. This approach could make reporting more efficient for both citizens and local authorities.

Different technologies will be required to develop the application successfully. Flutter or React

Native will allow the app to run on both Android and iOS devices, while Firebase can be used for secure data storage and user authentication. Google Maps API will support location services so that incidents can be reported accurately. These technologies are widely used because they provide flexibility, reliability, and scalability for modern software applications [2].

The application will include a range of useful **features** designed to improve usability and effectiveness. Users will be able to submit anonymous crime reports, share GPS locations, upload photographs or videos, receive emergency notifications, and access real-time community updates. Anonymous reporting is particularly important because many individuals may be reluctant to report incidents if they believe their identity could be exposed. Providing this option may encourage greater public participation and improve information sharing within communities. The success of the application depends on meeting the needs of different users. Residents would use it to report incidents and receive alerts, while police services and local councils could use the information to respond more effectively. Community leaders and youth workers may also benefit because the application could improve communication and encourage greater community involvement in local safety. Considering the needs of different stakeholders is an important part of successful information system design [1].

If the application is implemented successfully, it could have several positive effects. Faster reporting may help authorities respond more quickly, while community alerts could keep residents informed about incidents happening nearby. Over time, these improvements may increase public confidence and encourage more people to participate in keeping their communities safe [1], [7].

Protecting users' information is an essential part of the project. Since people may report sensitive incidents, the application must comply with UK GDPR and the Data Protection Act 2018. Features such as secure authentication, encrypted data storage, and privacy-by-design will help ensure that personal information remains protected throughout the system. Strong cybersecurity measures are essential for maintaining user trust in digital systems [3].

Overall, working on this proposal has helped me understand how different areas of computing, such as cybersecurity, mobile development and database design, can be combined to solve a real community problem.

Task 2 Aim and Objectives and Research Area

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Aim

This study aims to design and develop a secure Crime Reporting and Community Alert Mobile Application that enhances community safety by enabling real-time crime reporting, emergency alerts, and improved communication between citizens and local authorities.

Objectives

1. **Investigate the challenges associated with crime reporting in local communities**, including barriers such as fear of retaliation, lack of awareness, and communication gaps.
2. **Analyse existing crime reporting and public safety applications** to identify their strengths, weaknesses, and opportunities for improvement.
3. **Design a secure, intuitive, and user-friendly mobile interface** that allows users to report incidents quickly and confidently.
4. **Develop features that support anonymous crime reporting and real-time community alerts**, ensuring accessibility and user protection.
5. **Implement GPS and geolocation technologies** to enable accurate incident reporting and location-based notifications.
6. **Apply strong cybersecurity measures**, including authentication, encryption, and data protection mechanisms, to safeguard user information.
7. **Evaluate the usability, effectiveness, and reliability of the application** through user testing and feedback.

These objectives provide a clear structure for the research, design, development, and evaluation of the proposed mobile application.

Research Philosophy

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Research Philosophy

I chose the Pragmatist research philosophy because this project involves both technical development and understanding people's opinions. Developing the application requires knowledge of software and cybersecurity, but it is equally important to understand how users feel about crime reporting and what features they expect from the system. Pragmatism allows both qualitative and quantitative methods to be combined, providing a broader understanding of the research problem [4].

According to [5], a pragmatic approach allows researchers to combine different methods and perspectives to gain a deeper understanding of the topic. This is particularly relevant for this project, which requires insights into both technical aspects—such as mobile development, cybersecurity, and system design—and human factors, including user behaviour, perceptions, and expectations.

Pragmatism supports the use of **both qualitative and quantitative methods**:

- **Qualitative methods**, such as interviews, open-ended questionnaire responses, and user feedback sessions, help explore people's experiences, concerns, and expectations regarding crime reporting.
- **Quantitative methods**, such as surveys and statistical analysis, provide measurable data on user preferences, app usability, and feature effectiveness.

This combination ensures a balanced and evidence-based understanding of the problem.

Pragmatism aligns well with the project's goal of creating a secure, user-centred mobile application that can contribute to improved community safety and communication.

Review of Existing Systems and Research Strategy

Before carrying out the research, it is important to identify reliable academic sources. Rather than depending on a single website, I will use several recognised databases to collect information about mobile applications, cybersecurity, software development, and crime reporting. Using databases such as Google Scholar, IEEE Xplore, ScienceDirect, ACM Digital Library, and the UWTSD Library will help ensure that the information is accurate, current, and relevant to the project [4], [5].

Google Scholar will be my main source for finding academic information because it provides access to a wide range of journal articles, conference papers, books, and theses. It is easy to use and helps identify reliable research related to crime reporting, mobile applications, cybersecurity, and community safety. Google Scholar also allows me to find recent studies and follow citations to other relevant sources, making it useful for this project [1].

IEEE Xplore will be used because it contains high-quality research in computer science, software engineering, cybersecurity, networking, mobile computing, and artificial intelligence. Since this project involves designing a secure mobile application, IEEE Xplore provides access to current technical research on mobile application security, encryption, authentication methods, cloud computing, and location-based services [2], [3].

ScienceDirect will provide access to peer-reviewed journals published by Elsevier. It includes research on information systems, software development, human-computer interaction, data analytics, and digital innovation. Articles from ScienceDirect will support the project's theoretical background and provide evidence on best practices in application development [2].

The ACM Digital Library will also be used because it contains research published by the Association for Computing Machinery (ACM). This database offers valuable studies on software engineering, user experience (UX), mobile application design, database systems, and emerging technologies. It will help identify current approaches for designing user-friendly and secure mobile applications that meet both technical and user requirements [2], [4].

The University of Wales Trinity Saint David Library will provide access to subscribed academic resources that may not be freely available online. These include electronic books, peer-reviewed journals, conference proceedings, and research databases. Using the university library ensures that the literature reviewed is credible, reliable, and academically recognised, which strengthens the quality and validity of the research [1].

Suggested Keywords

To improve the quality of the literature review, Boolean operators such as **AND**, **OR**, and **NOT** will be used to refine search results and eliminate irrelevant publications. For example:

- ♦ "Crime reporting" AND "mobile application"
- ♦ "Community safety" AND cybersecurity
- ♦ "Anonymous reporting" OR "public safety app"
- ♦ "Crime reporting" NOT "financial crime"

These keywords help identify research related to user interface design, mobile security, digital safety systems, and community engagement technologies.

Additional filters, including publication date (preferably within the last five years where appropriate), peer-reviewed articles, English language, and relevance to the research objectives, will also be applied. Each selected source will be evaluated based on its credibility, methodological quality, citation frequency, and relevance to the proposed project. This systematic search strategy will ensure that the project is supported by reliable, current, and evidence-based literature, improving both the quality and credibility of the research findings [1], [2], [5].

Task 3 Research Strategies

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Introduction

The selected project for this research proposal is the **Crime Reporting and Community Alert Mobile App**. The project aims to develop a secure mobile application that allows citizens to report crimes, receive community alerts, and improve communication with local authorities. To ensure the success of the project, appropriate research strategies, ethical considerations, and data collection methods must be carefully planned and implemented [1], [2].

Validity, Reliability, Generalisability and Ethical Considerations

Several strategies will be used to improve the validity, reliability, generalisability, and ethical quality of the research.

Validity

Validity refers to how accurately the research measures what it intends to measure [6]. To improve validity, questionnaires and interview questions will focus directly on crime reporting, community safety, and mobile application usability.[12]

Reliability

Reliability refers to the consistency of research findings. Standardised questionnaires and structured data collection procedures will be used to ensure consistency across participants.[10]

Generalisability

Generalisability refers to the extent to which findings can be applied to a wider population. Feedback will be collected from participants with different backgrounds and levels of technological experience to improve representativeness.

Ethical Considerations

Ethical considerations are particularly important because the project involves collecting user opinions and potentially sensitive information. Participants will provide informed consent and all responses will remain confidential.

The project will comply with UK GDPR and the Data Protection Act 2018. Personal information will be protected through encryption, secure authentication, and access control mechanisms. [9]

Pilot Questionnaire Example

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The pilot questionnaire was designed to gather initial feedback on user perceptions of crime reporting, community safety, and mobile application usability. The questions aim to identify user needs, concerns, and expectations, which will guide the development of the application. Five participants completed the pilot questionnaire. Most participants found the questions easy to understand. Some recommended adding more options related to data privacy and emergency reporting. Based on this feedback, the questionnaire was revised before the main data collection.

Pilot questionnaire 1

Question	Type
Do you feel safe in your area?	Likert scale
Have you witnessed crime before?	Yes/No
Would anonymous reporting encourage reporting?	Yes/No
Which app feature is most useful?	Multiple choice
What challenges exist in reporting crime?	Short answer

Pilot questionnaire 2

How often do you use mobile applications?	Daily / Weekly / Rarely / Never
Have you ever witnessed or experienced a crime or suspicious activity in your community?	Yes / No / Prefer not to say
Would you use a mobile app to report crime or suspicious activity?	Yes / No / Maybe
Would you feel safer if you received real-time alerts about incidents happening near you?	Yes / No / Maybe
Which features would be most useful in a crime reporting app?	Multiple Choice: Anonymous reporting / GPS location sharing / Photo-video upload / Emergency SOS button / Real-time alerts / Crime map
How important is anonymous reporting to you?	Very Important / Important / Not Very Important / Not Important
What concerns would you have about using a crime reporting app?	Privacy / Personal safety / False reports / Data security / App difficulty / Other
How easy should the app be to use?	Very Easy / Easy / Neutral / Difficult
Would you trust an app that stores crime reports securely and protects your identity?	Yes / No / Maybe
What would encourage you to use this application?	Simple design / Privacy protection / Fast alerts / Anonymous reporting / Community support
Do you have any suggestions to improve the Crime Reporting and Community Alert Mobile App?	Open-ended response

Feedback evidence

Participant	Feedback Received	Improvement Made
Participant 1	Some questions were too long	Simplified wording of questions
Participant 2	Suggested adding emergency SOS feature	Added SOS option to feature list
Participant 3	Wanted stronger privacy protection	Added more focus on cybersecurity and anonymity
Participant 4	Recommended simpler app design	Improved usability focus
Participant 5	Suggested real-time notifications	Added community alert notification feature

Research screenshots

Research Area	Key Insight	Source
Crime reporting apps	Mobile apps increase reporting accessibility	Police.UK app
Community safety systems	Real-time alerts improve prevention	Neighbourhood Alert
Smart city monitoring	Crime maps + GPS enhance awareness	Neighbourhood Policing UK
Anonymous reporting	Encourages more people to report	Neighbourhood Policing UK
Community alerts	Alerts reduce crime and scams	Neighbourhood Alert

Quantitative Analysis

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Quantitative Analysis

To understand users' opinions, I will collect numerical data through online questionnaires. The responses can then be analysed using percentages, frequencies, charts, and simple statistical methods. This approach will help identify which features users consider most important and compare different opinions. Quantitative analysis provides measurable evidence that can support design decisions [4], [5]. Basic statistical analysis will also be used to identify relationships within the data. For example, the research may investigate whether individuals who feel unsafe are more likely to support anonymous reporting features.

The findings will provide evidence to support design decisions and feature selection.

- Percentages
- Pie charts
- Bar charts
- Statistical analysis

Qualitative Analysis

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Qualitative Analysis

Numbers alone cannot explain how people feel about crime reporting. For this reason, qualitative data will also be collected through interviews, open-ended questions, and user feedback. Analysing these responses will provide a better understanding of participants' experiences, concerns, and expectations, which can then be used to improve the application's design. Thematic analysis is widely used to identify common patterns within qualitative data [8].

A **thematic analysis** will be used to identify recurring themes within the responses. Potential themes may include:

- fear of retaliation
- lack of trust in authorities
- privacy concerns
- desire for real-time alerts
- need for a simple and intuitive interface

Responses will be coded into categories to support analysis. For example, a comment about being afraid to report incidents could be coded under both *privacy concerns* and *fear of retaliation*.

These qualitative insights will complement the quantitative data by providing context and depth. If many participants express concerns about confidentiality, this will reinforce the importance of anonymous reporting and strong cybersecurity measures.

The qualitative findings will help ensure that the application is user-centred and aligned with real community needs.

Some responses may contain different opinions, so thematic analysis will help identify the ideas that appear most frequently.

Conclusion

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Completing this research proposal has helped me understand the importance of planning before developing a software project. Throughout this work, I explored how research methods, academic literature, and user feedback can support the design of a practical mobile application. I also realised that developing a successful application is not only about programming. It requires careful consideration of users' needs, privacy, security, and ethical responsibilities [2], [3], [4].

Overall, I believe this project has the potential to improve communication between citizens and local authorities while encouraging safer communities. Working on this proposal has strengthened my research skills and increased my confidence in planning future computing projects [1], [7].

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Appendix

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Appendix A

Mind map



Figure 1 MindMap



1. Project Aim

To research, design and develop a mobile application that enables citizens to report crimes and receive real-time community safety alerts.

2. Project Description

Crime and public safety remain significant concerns in many communities. This project proposes a secure mobile application that enables citizens to report incidents, receive real-time safety alerts, and access important community information. The application supports anonymous crime reporting while using secure authentication to protect the system from misuse. It also incorporates GPS location tracking, community notifications, and cybersecurity measures to enhance public safety. The project aims to improve communication between citizens and local authorities, encourage community engagement, and contribute to safer neighbourhoods through the use of innovative mobile technology.



3. SMART Objectives

- Research community safety challenges and existing crime-reporting solutions.
- Design the user interface and system architecture.
- Develop a functional mobile application prototype.
- Implement GPS tracking and real-time notifications.
- Test and evaluate usability, security, and effectiveness.
- Provide recommendations for future improvements.

4. PROJECT SCOOP

Deliverables

- Mobile App Prototype
- User Interface Design
- Database Design
- Testing Report
- Final Evaluation Report

Timeframe

- 8 Weeks

5. Project Constraints

- Limited project duration (8 weeks)
- Limited development resources
- Limited access to real-world crime databases
- Budget limitations
- UK GDPR compliance requirements
- Data privacy and cybersecurity considerations
- Ethical and legal compliance requirements

7. Resources Required

- Android Studio
- Firebase
- Google Maps API
- Laptop/PC
- Internet Access
- Research Materials
- Firebase Authentication
- Figma
- Microsoft Forms
- GitHub



9. Key Project Stages

- Research
- Requirements Analysis
- System Design
- Development
- Testing
- Evaluation
- Documentation

CRIME REPORTING AND COMMUNITY ALERT MOBILE APP

Enhancing Community Safety Through Technology

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STUDENT ID: 2436215

Module: Changemakers: Creativity and Value Creation

Research Objectives

- To investigate challenges related to crime reporting in local communities.
- To analyse existing crime reporting and community safety applications.
- To design a secure and user-friendly mobile application interface.
- To develop anonymous crime reporting and real-time alert features.
- To implement GPS location tracking and notification systems.
- To evaluate the usability, effectiveness, reliability, and security of the application..

6. Risks and Contingencies

Risk	Contingency
Running out of time.	Create a detailed Gantt Chart
Data loss	Cloud backup and external storage
Software failure	Alternative development tools
Lack of technical knowledge	Online tutorials and research
Data protection compliance issues:	Follow UK GDPR guidelines and conduct privacy reviews

8. PROPOSED SOLUTION



- Crime Reporting
- Real-Time Alerts
- Community Notifications
- Location Mapping
- Safety Tips
- User Profiles
- Anonymous Reporting
- Secure Authentication
- Data Encryption
- GPS Location Tracking
- UK GDPR Compliance
- Data Protection Act 2018 Compliance

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Figure 2 Academic Poster

