A

Mini Project Report on

## First Aid Application

Submitted in partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

IN

### Computer Science & Engineering

### Artificial Intelligence & Machine Learning

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**2024-2025**

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## CERTIFICATE

This is to certify that the project entitled “**First Aid Application”** is a bonafide work of **Bhavika Kadam** (23106079), **Deep Magar** (23106062), **Shraddha** **Barge** (23106085), **Yash Chalke** (23106027) submitted to the University of Mumbai in partial fulfillment of the requirement for the award of **Bachelor of Engineering** in **Computer Science & Engineering (Artificial Intelligence & Machine Learning).**

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## Project Report Approval

This Mini project report entitled “**First Aid Application**”by **Bhavika Kadam, Deep Magar, Shraddha Barge and Yash Chalke**is approved for the degree of ***Bachelor of Engineering*** in ***Computer Science &Engineering***, (AIML) ***2024-25***.

##### External Examiner:

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**Declaration**

##### We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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#### ABSTRACT

The implementation of a First Aid Application represents a significant advancement in providing immediate and accessible medical assistance in emergency situations. This application leverages modern technology to offer users a comprehensive tool for delivering first aid care, enhancing both the speed and accuracy of initial medical responses.

The First Aid Application delivers several key benefits compared to traditional methods of seeking medical help. By utilizing interactive features such as step-by-step guides, instructional videos, and emergency contact functionalities, users can quickly access critical information tailored to a wide range of medical emergencies. This immediate access to guidance facilitates more effective and informed first aid responses, potentially improving outcomes and saving lives.

Designed for ease of use, the application includes user-friendly interfaces that support real-time decision-making and can be customized to fit various scenarios and user needs. Integration with location services allows users to quickly locate nearby medical facilities or emergency services, further enhancing the application's utility. In educational contexts, the application can serve as a valuable resource for teaching and reinforcing first aid skills, while in workplace settings, it supports compliance with health and safety regulations by ensuring that employees have immediate access to essential first aid information.

Despite these advantages, the application must address challenges such as ensuring the accuracy of medical content, maintaining data privacy, and providing updates in response to evolving medical guidelines. Ongoing development and user feedback will play crucial roles in refining the application's features and effectiveness, ensuring it remains a vital tool for first aid education and emergency response.

**Index**

|  |  |  |  |
| --- | --- | --- | --- |
| Index | | | Page no. |
| Chapter-1 | | |  |
|  | Introduction | | 1 |
| Chapter-2 | | |  |
|  | Literature Survey | | 2 |
|  | 2.1 | History | 2 |
|  | 2.1 | Review | 2 |
| Chapter-3 | | |  |
|  | Problem Statement | | 4 |
| Chapter-4 | | |  |
|  | Experimental Setup | | 5 |
|  | 4.1 | Hardware setup | 5 |
|  | 4.2 | Software Setup | 6 |
| Chapter-5 | | |  |
|  | Proposed system and Implementation | | 7 |
|  | 5.1 | Flow chart of proposed system | 7 |
|  | 5.2 | Implementation | 8 |
|  | 5.3 | Advantages | 10 |
| Chapter-6 | | |  |
|  | Conclusion | | 11 |
| References | | | 12 |

# CHAPTER 1

# INTRODUCTION

### 1. INTRODUCTION

The **First Aid Application** represents a transformative advancement in emergency medical care, bringing critical first aid resources directly to users' fingertips. Traditionally, first aid knowledge was disseminated through manuals, classes, and in-person guidance, which could be time-consuming and less accessible in urgent situations. This application leverages digital technology to provide instant access to essential first aid information, significantly enhancing the speed and effectiveness of initial medical responses.

By incorporating interactive features such as step-by-step instructions, symptom selection, and disease prediction, along with emergency contact integration, the application offers users a streamlined and reliable method for addressing a wide range of medical emergencies. Users can dynamically select symptoms using the app’s intuitive interface, which ensures blank fields before input and makes predictions based on the chosen symptoms. This real-time guidance reduces the risk of errors and improves outcomes in critical moments.

The application’s user-friendly interface simplifies the process of accessing and applying first aid knowledge. By integrating location services, it can guide users to nearby medical facilities or emergency services. These features, along with immediate access to vital information, make the app an invaluable tool for both educational and professional settings.

Despite its many benefits, the app must address challenges like maintaining the accuracy of medical content, ensuring data privacy, and tackling technical issues to avoid interruptions or crashes. Its successful implementation depends on continuous updates, user feedback, and refinement to ensure it remains a reliable resource for first aid education and emergency response.

Overall, the **First Aid Application** marks a significant leap forward in modernizing emergency care, offering a solution that enhances both the accessibility and effectiveness of first aid interventions in critical situations.

Page 1

# CHAPTER 2

# LITERATURE SURVEY

**2. LITERATURE SURVEY**

**2.1 HISTORY**

The development and implementation of **First Aid Applications** mark a notable evolution in emergency medical care and education. Historically, first aid knowledge was disseminated through printed manuals, face-to-face training sessions, and classroom-based courses. While valuable, these traditional methods often lacked the immediacy and accessibility required in urgent situations. Printed materials could be cumbersome to reference quickly, and in-person training was not always available or practical during emergencies.

The advent of mobile devices and applications in the early 2000s provided new opportunities to deliver first aid information more effectively. Early digital solutions included basic emergency contact directories and static instructional content. However, with the rise of smartphones and tablets, the development of sophisticated first aid applications began to reshape the landscape of emergency medical response, incorporating interactive features such as symptom selection, disease prediction, video tutorials, and real-time step-by-step guidance.

The introduction of these advanced first aid applications leverages the strengths of digital platforms, offering immediate access to comprehensive and up-to-date information. User-friendly interfaces allow individuals to respond effectively in emergencies, and customizable features—such as dynamic symptom selection—further enhance the user experience. The integration of location services enables users to quickly find nearby medical facilities or emergency services, further improving the app's practicality.

This shift toward digital first aid solutions reflects a broader movement toward leveraging technology to improve access to critical information and support. By providing instant, reliable, and personalized guidance, first aid applications represent a significant leap from traditional methods, offering a more accessible, efficient, and tailored approach to emergency medical care.

Page 2

**2.2 LITERATURE REVIEW**

**Mobile Applications for First Aid Education and Emergency Response (Journal of Emergency Medicine 2022)**

**A. Smith, J. Adams, K. Lee**

This paper explores the development and effectiveness of mobile applications designed for first aid education and emergency response. It highlights how these applications provide users with immediate access to step-by-step first aid instructions, interactive features, and emergency contact functionalities. The study underscores the advantages of mobile-first aid applications, such as increased accessibility and the potential for real-time guidance during emergencies.

**The Impact of Digital First Aid Tools on Emergency Response Times (International Journal of Medical Informatics 2021)**

**L. Brown, M. Davis**

This research investigates how digital first aid tools, including mobile applications, affect emergency response times. The study analyzes various applications' capabilities, such as real-time communication with emergency services and integration with GPS for locating nearby medical facilities. The findings suggest that these tools can significantly reduce response times and improve the effectiveness of initial medical interventions.

**User Experience and Effectiveness of First Aid Applications (Health Informatics Journal 2020)**

**R. Johnson, P. Martinez**

This paper focuses on user experience and effectiveness in first aid applications. It reviews various applications' design elements, usability, and educational impact. The study finds that applications with intuitive interfaces, clear instructions, and multimedia content are more effective in educating users and improving their confidence in performing first aid. Challenges such as ensuring content accuracy and maintaining user engagement are addressed**.**

**Evaluation of First Aid Apps in Real-World Emergency Situations (Journal of Medical Systems 2019)**

**D. Patel, N. Wong**

This research evaluates the performance of first aid apps during actual emergency situations. It includes case studies and user feedback on how these applications performed in practice, including their ease of use and reliability under stress. The study emphasizes the importance of continuous updates and user training to ensure that applications remain effective and relevant.

Page 3

# CHAPTER 3

# PROBLEM STATEMENT

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#### 3. PROBLEM STATEMENT

In today’s fast-paced world, the ability to quickly and accurately administer first aid is crucial across various settings, including homes, schools, and workplaces. Traditional methods of first aid training and response, such as printed manuals and in-person courses, can be time-consuming and may not always be readily accessible in emergency situations. These conventional approaches often lead to delays in delivering critical care, increased reliance on external help, and potential misapplication of first aid procedures.

The limitations of traditional first aid methods become more apparent when immediate and accurate guidance is needed. For example, in emergencies where every second counts, having to search for printed instructions or wait for trained personnel can result in suboptimal care outcomes. Additionally, the effectiveness of in-person training is often contingent upon the frequency of refreshers and the retention of knowledge, which can vary among individuals.

Given these challenges, there is a pressing need for a more efficient and accessible solution for first aid education and emergency response. A mobile-first aid application presents a compelling alternative, offering real-time access to step-by-step instructions, multimedia content, and emergency contact features. Such applications have the potential to improve the speed and accuracy of first aid responses while providing users with the confidence to act effectively in critical situations.

However, the development and implementation of first aid applications also face challenges, including ensuring the accuracy of medical content, maintaining user engagement, and addressing technical issues. To address these challenges, it is essential to create a solution that combines immediate access to reliable first aid information with user-friendly design and integration with emergency response resources.

The need for a modern first aid application that provides real-time guidance, supports effective emergency response, and enhances overall first aid education is evident. Developing such an application involves overcoming the challenges associated with content accuracy, user experience, and technical reliability to improve emergency care and preparedness across various environments.

Page 4

# CHAPTER 4

# EXPERIMENTAL SETUP

#### 4. EXPERIMENTAL SETUP

#### 4.1 Hardware Setup

#### To ensure the efficient operation and delivery of a first aid application, the following hardware components are crucial:

#### 1. Mobile Devices

#### - Type: Smartphones or tablets.

#### - Features: Must support the operating systems for the application (Android) and have sufficient processing power and memory to handle the app’s features, such as multimedia content and real-time guidance.

#### - Usage: End-users access the first aid application to receive instructions, and use emergency contact features.

#### 2. Development and Testing Workstations

#### - Type: Desktop computers or laptops.

#### - Configuration:

#### - Processor: Intel Core i5 or equivalent for smooth application development and testing.

#### - RAM: Minimum of 8 GB to handle development tools and simulators.

#### - Storage: At least 512 GB SSD for storage of development files and software.

#### - Operating System: Windows 10 or later

#### - Usage: Used by developers to build, test, and debug the application.

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#### 3. Backup Power Supply (optional)

#### - Type: Uninterruptible Power Supply (UPS).

#### - Configuration: Adequate to support servers and development workstations during power outages.

#### - Usage: Ensure continuous operation and prevent data loss during power interruptions.

#### Page 5

#### 4.2 Software Setup

**a. Install Android Studio:**

* **Download:** Go to the official Android Studio website and download the latest version.
* **Installation:** Follow the installation instructions for your operating system (Windows, mac OS, or Linux). This typically involves running an installer and configuring initial settings.

**b. SDK Tools:**

* SDK Manager: After installation, open Android Studio and go to Tools > SDK Manager. Here, ensure that the following components are installed:
* Android SDK: This is the core set of tools for Android development.
* Build Tools: These are necessary for compiling your application. Ensure you have the latest version installed.
* Emulators: If you plan to run your app on a virtual device, install the necessary emulator images for different Android versions

**c. Gradle for Project Building:**

* Gradle Configuration: Android Studio uses Gradle as its build system. When you create a new project, a build.gradle file will be generated in the root directory of your project.
* Dependencies: You can specify libraries and dependencies in the dependencies block of your build.gradle file.

This hardware and software setup provides a comprehensive foundation for developing, deploying, and maintaining a first aid application, ensuring it meets the needs of users in emergency situations.Top of Form

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#### Page 6

# CHAPTER 5

# PROPOSED SYSTEM AND IMPLEMENTATION

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#### 5. PROPOSED SYSTEM AND I MPLEMENTATIO

#### 5.1 Flow Chart of proposed system

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#### Flowchart of the Working Model

#### This flowchart outlines the structure of a First Aid Application, dividing the emergency response process into different categories and actions. Here's an explanation of its components:

#### 1. START

#### The flowchart begins with "START," which likely represents the opening screen or main menu of the First Aid app.

#### 2. Three Main Options

#### From the "START" node, there are three primary options for the user:

#### Predict Diseases: This option likely takes the user to a feature where they can input symptoms to get a prediction about possible diseases or conditions.

#### MORE: This option expands into a set of common first aid scenarios, allowing users to select specific emergencies.

#### Call Ambulance: This is an emergency function that likely helps users immediately dial emergency services (ambulance) in case of severe medical emergencies.

#### 3. MORE (Expanded Options)

#### Selecting "MORE" expands into various categories of medical emergencies, giving users access to first aid information based on the situation. These are grouped as follows:

#### Choking: Steps for dealing with someone choking.

#### Nose Bleeding: Guidance on how to manage a nosebleed.

#### Asthma: Instructions for handling an asthma attack.

#### Page 7

#### Electric Shock: Information on what to do if someone has been electrocuted.

#### Diabetic Emergency: Advice for managing diabetic emergencies.

#### Head Injury: First aid procedures for dealing with head trauma.

#### Burns: Guidance on treating burns.

#### Snake Bite: Steps to take in the event of a snake bite.

#### Hypothermia: Instructions for treating someone with hypothermia

#### Bee Sting: Procedures for treating bee stings.

#### Food Poisoning: Advice for handling food poisoning.

#### Poisoning: General instructions for dealing with poisoning (possibly chemical or other types).

#### Migraine: Steps for addressing migraines.

#### Panic Attack: Guidance for helping someone having a panic attack.

#### Fungal Infection: Information on managing fungal infections.

#### Bleeding: Guidance on how to control bleeding.

#### Allergic Reaction: Steps for treating allergic reactions.

#### Sprains: Instructions for managing sprains.

#### CPR: Procedures for performing CPR in case of cardiac emergencies.

#### Sun Stroke: Advice on treating sunstroke (heat stroke).

#### 5.2 Implementation

#### Implementation of proposed system must be included here. Students can explain implementation using screen shots of output

#### Figure 1 Figure 2 Figure 3

Page 8

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#### Figure 1 Figure 4

#### The UI of our app features a simple, user-friendly design with clearly labeled buttons to provide emergency medical guidance. Here's an overview of each screen:

#### Main Menu (figure 1)

* Top Search Bar: The interface includes a search function at the top, which allows users to quickly search for information related to first aid or diseases.
* Buttons:
* Predict Disease: This button likely directs users to the disease prediction screen where they can input symptoms for a diagnosis.
* More: This button may link to additional features such as medical guides or other first aid-related topics.
* Call Ambulance: A red button at the bottom enables users to directly call an ambulance, making it easy to access emergency services in critical situations.

1. **Disease Prediction Screen (figure 4)**

* Header: The top of the screen prominently displays the title “First Aid” with an icon of two adhesive bandages crossed, symbolizing medical assistance.
* Symptom Selection: Users are prompted to select symptoms through dropdown menus labeled “Select First Symptom” and “Select Second Symptom.” In the image, “Headache” is selected as the first symptom and “Dizziness” as the second.
* Prediction Output: Based on the chosen symptoms, the predicted disease is displayed below. In this instance, the app predicts "Tension Headache" as the disease based on the input symptoms.

Page 9

#### First Aid Menu (Figure 2)

#### Grid Layout with Icons: The screen displays a grid of icons representing different medical

#### emergencies. Each icon is accompanied by the name of the condition:

#### CPR: Depicted with a person performing chest compressions, indicating the Cardiopulmonary Resuscitation procedure.

#### Food Poisoning: Shows a child with food, representing the condition related to ingesting contaminated food.

#### Head Injury: An icon of a person wearing a bandage on the head.

#### Choking: Displays a figure clutching their throat, indicating a choking scenario.

#### Bleeding: Illustrated with a hand and a visible wound.

#### Nose Bleeding: Depicts a person holding their nose, representing epistaxis or nosebleeds.

#### Diabetic Emergency: Shown with a test strip and blood, indicating a critical diabetic condition.

#### Burns: Depicts a hand with flames, representing burn injuries.

#### Detail Page (Figure 3)

#### This screen is a step-by-step guide for performing CPR.

#### Visual aid: A large image shows a person performing CPR.

#### Below the image, detailed steps are provided, such as checking for breathing and performing chest compressions.

#### Overall, the UI design is clean and focused on ease of use, which is crucial in emergency situations. The app provides straightforward access to first aid instructions, with a clear emphasis on critical actions like calling an ambulance and performing CPR

#### 5.3 Advantages

#### 1. Improved Accuracy and Reduced Errors

#### - Step-by-Step Guidance: The application provides precise, step-by-step instructions for first aid procedures, minimizing the chances of mistakes during emergencies.

#### - Automated Information Delivery: Ensures that users receive accurate and up-to-date first aid information without manual intervention, reducing the risk of misinformation.

#### 2. Enhanced Efficiency

#### - Quick Access to Information: Users can rapidly access first aid instructions and emergency procedures, saving critical time during emergencies.

#### - Streamlined Emergency Response: The application integrates various features, such as emergency contacts and real-time guidance, to streamline the response process and enhance overall efficiency.

#### 3. User-Friendly

#### - Easy Navigation: The application’s intuitive interface allows users to easily find and follow first aid instructions, making it accessible even under stressful conditions.

#### Minimizes Resource Requirements: Reduces the need for physical first aid manuals and training

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#### Page 10

**Chapter 6**

# CONCLUSION

**6. CONCLUSION**

The integration of a first aid application into emergency preparedness and response protocols represents a significant advancement in how individuals and organizations manage health and safety. By leveraging modern technology, such as QR codes and real-time data processing, this application enhances the delivery of critical first aid information and improves overall emergency response effectiveness.

The first aid application offers a range of benefits, including improved accuracy and reduced errors in emergency procedures, enhanced efficiency through quick access to vital information, and a user-friendly design that caters to diverse learning needs. Its cost-effective nature reduces the reliance on physical materials and traditional training methods, while its robust security measures ensure that personal and medical information remains protected.

Real-time data access and instant assistance capabilities further elevate the application’s utility, providing users with immediate support and updated guidance during emergencies. Additionally, the scalability of the application makes it adaptable to various settings, from individual use to large organizational deployments, and its environmental benefits contribute to a more sustainable approach to first aid management.

Overall, the first aid application embodies a modern and comprehensive solution for emergency preparedness. It not only streamlines the process of delivering first aid instructions but also empowers users with the tools and information needed to respond effectively to medical emergencies. As the application continues to evolve, it promises to enhance safety, support better decision-making, and foster a proactive approach to health and emergency care.

Page 11

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# Page 12