Software Requirements Specification

for

Snakebite Identification & Detection with Snakebite Mark Using Machine Learning Approach

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1. Introduction

1.1 Purpose

The prime purpose of the system is to identify the snakebite from the bite image and the symptoms that are experienced by the person that can help the person to get faster medical aid and altogether decrease the snakebite envenoming deaths to a certain length.

1.2 Intended Audience

The system is to be of use to the common people, medical professionals, as well as doctors. This system can be utilized by any person irrespective of their profession who are prone to snakes and snake bites. As the data collected will be cross-checked twice, we can clearly say that the result will be accurate. The system will be most useful in the field of medicine.

1.3 Project Scope

Snakebite envenoming needs urgent attention. A great deal of damage occurs following the delay in medical services. Misidentification can lead to inadequate treatment for the victim currently, the syndromic approach is widely used but, this strategy has limitations. This is the situation where this system plays its role.

When a person who is a novice in the knowledge of snakes gets bitten by one of them then, he or she will start panicking and cause the blood flow to increase and if by any chance the bite was from a poisonous snake it may lead to the person's death. But in the same situation, if the person has our system with them, they can easily capture an image of the bite and input the symptoms into the system that automatically segregates the possible snake that has bitten the person. The doctors also can use our system to identify the snake and start administering medication.

1.4 References

1. https://ieeexplore.ieee.org/document/9104200

2. https://ieeexplore.ieee.org/document/6291349

3. Image processing for snake identification based on bite using local binary pattern and support vector machine method-*Yoga Widi Pamungkas, Adiwijaya Adiwijaya,Dody Qori Utama*

2. Overall Description

2.1 Product perspective

2.1.1 Existing System

- An Image Processing System for Identification snake bite that helps identify and classify snakes automatically.
- While the system only classifies venomous and non-venomous snakes without knowing the type of snake.
- Symptoms of an individual is not considered.

2.1.2 Proposed System

- The system is to identify the snakebite from the bite image and the symptoms that are experienced by the person that can help the person to get faster medical aid.
- In this project we utilize the concepts of Machine Learning and Image Processing for the identification and classification of snakebites.

2.2 Product Features

- Identification and recognition of distinct snake bite at the earliest, resulting in anti-venom administration.
- The doctors also can use our system to identify the snake and start administering medication.
- Helps to decrease the snakebite envenoming deaths to a certain length.

2.3 User Classes and Characteristics

The system is to be of use to the common people, medical professionals, as well as doctors. The doctors can use our system to identify the snake and start administering medication. This system can be utilized by any person irrespective of their profession who are prone to snakes and snake bites. The proposed system is to speed up the process of pin-pointing the species before being late which in turn narrows the mortality rate due to the envenomation.

2.4 Operating Environment

Operating System Server: Windows 10

3. System Features

3.1 System Feature 1

3.1.1 Description and Priority

This project has high priority because it bring a new change in medical field.
Using this application we can differentiate between venomous and nonvenomous snake whereby an immediate and effective medical care can be instituted to the victims. However , early identification is not easy. so, we developed snake bite identification system to differentiate the snake using it bite. Using the snake bite mark our system detect the snake as result the person who using the application can easily identify the snake and can take proper medical treatment they want.

3.1.2 Stimulus/Response Sequences

- Scan the snake bitten area properly and take the digital image of that area.
- Using an image processing algorithm the image will get processed.
- The image will compare with available dataset.
- As a result the snake can be identified easily.

3.1.3 Functional Requirements

- User can be anyone like Doctor, medical experts etc.
- User can directly scan the snake bitten area.
- User can easily identify which snake has bitten.
- Appropriate medication can be taken.

4. External Interface Requirements

4.1 Software Interfaces

Development tool :- MS Visual studio, Sublime Text, Jupyter Notebook.

Programming Language :- Python.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The application should provide correct output. It will correctly detect the snake. The performance will be good. The usage and understandability will be easy. The app will mostly give the true answer.

5.2 Safety Requirements

This provides a confidential data from the database, gives about the bit mark. Doctor can take the safety measurement and apply the medicine.

5.3 Security Requirements

The database should be secure. No crash or damage can be occur to the database.

5.4 Software Quality Attributes

- CORRECTNESS - They will process the image and gives correct snake bite.
- AVAILABILITY - The app will be available in app store.
- ADAPTABILITY- The application can be used in any android version platform.