

Snakebite Identification & Detection With Snakebite Mark Using Machine Learning Approach

Department of CSE
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NAME OF THE PROJECT : Snakebite Identification & Detection With
Snakebite Mark Using Machine Learning Approach

Vision of the Department

- Creating eminent and ethical leaders in the domain of Computational Sciences through quality professional education with a focus on holistic learning and excellence.

Mission of the Department

- To create technically competent and ethically conscious graduates in the field of Computer Science and Engineering by encouraging holistic learning and excellence.
- To prepare students for careers in Industry, Academia and the Government.
- To instill Entrepreneurial Orientation and research motivation among the students of the department.
- To emerge as a leader in education in the region by encouraging teaching, learning, industry and societal connect.

ABSTRACT

- Estimates of 81,410 – 1,37,880 deaths and 4,00,000 cases of disability globally every year
- Complement current approach to snakebite envenoming
- Both symptoms and bite mark are taken into consideration to speed up the process of pinpointing the species before being late
- Avoids fake panicking situations
- Identification of the bite mark to perform anti-venom administration

INTRODUCTION

- Snakes are one of the dangerous reptiles due to their venoms
- 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, a syndromic approach is widely used but, this strategy has limitations

MOTIVATION

“Identification and recognition of distinct snake bite at the earliest, resulting in antivenom administration, which in turn narrows the mortality rate due to the envenomation”

EXISTING SYSTEM

- An Image Processing System for Identification snake bite that helps identify and classify snakes
- Local Binary Pattern (LBP) for feature extraction and uses the Support Vector Machine classification method
- It demonstrates the use of taxonomic features in the classification of snakes with the nearest neighbour classification
- While the system only classifies venomous and non-venomous snakes without knowing the type of snake
- Symptoms of an individual is not considered

EXISTING SYSTEM

Drawbacks

- Wrinkled or hairy skin or bruising on the bite or wound area affect calculated result.
- Blood clots on the bite marks causes classification errors because system incorrectly detect snake bite, which should not snake bite resulting in a poor accuracy
- This system only determine whether the snake is venomous or not couldn't identify the snake

LITERATURE SURVEY-1

Detection of Knee Osteoarthritis Using X-Ray

Features

- This system detect osteoarthritis (OA) from knee X-ray images using image processing technique.
- Using this approach better diagnosis treatment can be applied to the patient since a computed automated measurements leads to accurate values.
- Using Kellgren Lawrence scale severity of osteoarthritis can measure easily.

LITERATURE SURVEY-1

ADVANTAGE

- Predict KL-Scale grade automatically.
- Reduce radiologist work and burden.
- Diagnosis make easier.

DISADVANTAGE

- Patient age and region affect the accuracy of result.
- Precision of result depends on quality of X-Ray.
- Lack of sufficient data data set affect the KL-Grading

LITERATURE SURVEY-2

A Development of Snake Bite Identification System (N'viteR) using NEURO-GA

- Differentiate between venomous and non-venomous snake
- This hybrid technique has achieved 97.6% of accuracy
- Enables early identification of snake
- Immediate medication can be administered

LITERATURE SURVEY-2

A Development of Snake Bite Identification System (N'viteR) using NEURO-GA

ADVANTAGES :

- Based on the experiments it shows that epoch 4000 give a high accuracy
- Even better than BPNN, this is a combination with GA yields a high accuracy to identify a venomous and non-venomous snake based on cases provided

DISADVANTAGES :

- This technique may give higher accuracy but it will take a longer time to finish the training process
- Data will not determine any specific feature other than info about venom

LITERATURE SURVEY-3

Image processing for snake identification based on bite using Local Binary Pattern and Support Vector Machine method

- It demonstrates the use of taxonomic features in the classification of snakes

Advantages:

- Faster classification
- Good at recognizing the bite of a poisonous and non-venomous snake.

Disadvantage:

- Wrinkled or hairy skin or bruising on the bite or wound area affect calculated result

LITERATURE SURVEY-4

An efficient Harris hawks-inspired image segmentation method

- The multilevel thresholding method is more efficient for segmenting digital mammograms.
- An efficient methodology for multilevel segmentation is proposed using the Harris Hawks Optimization (HHO) algorithm and the minimum cross- entropy as a fitness function.
- Efficient tool that can be used as a preprocessing step in different image processing systems is called MCET-HHO.
- Proposed method optimizes the search for the best solution of a function inspired by the behavior of the Harris hawks.

LITERATURE SURVEY-4

An efficient Harris hawks-inspired image segmentation method

Advantage:

- More efficient for segmentation method.
- This algorithm presents robustness in its behavior.
- Produces efficient and reliable results in terms of quality, consistency, and accuracy

Disadvantage:

- It has shown a potential in jumping of local optimum solution.
- It is not able to handle RGB images.

LITERATURE SURVEY-5

Deep Learning Model for Identifying Snakes by using Snakes' Bite Marks

- Identifying snakes by using their bite marks
- They are classifying them as venomous and nonvenomous using CNN.

Advantage:

- To identify which species of snake.
- Can start fast treatment.
- Idea may help the public to stop about afraid of snakes bites.

Disadvantage:

- When a new pattern is identified then the system should updated.

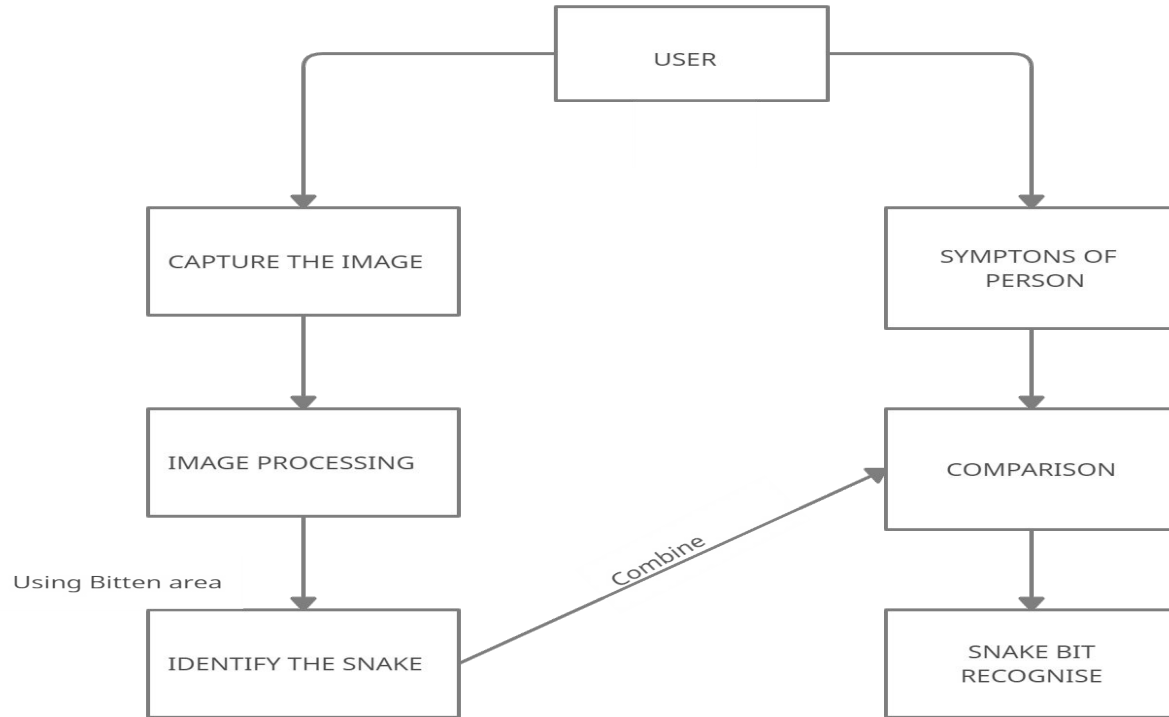
DESCRIPTION OF THE PROPOSED SYSTEM

- The system is to identify the snakebite from the bite image and the symptoms that are experienced by the person that can help to get faster medical aid
- Speeds up the process of pinpointing the species before being late
- Concepts of Machine Learning and Image Processing for the identification and classification of snakebites
- Doctors also can use our system to identify the snake and start administering medication

FEATURES OF PROPOSED SYSTEM

- The system provide necessary information regarding the snake using the snake bitten mark
- Identifying snakes by using bite mark helps the doctor to diagnose the victim with proper anti venom
- Helps to decrease the snakebite envenoming deaths to a certain length

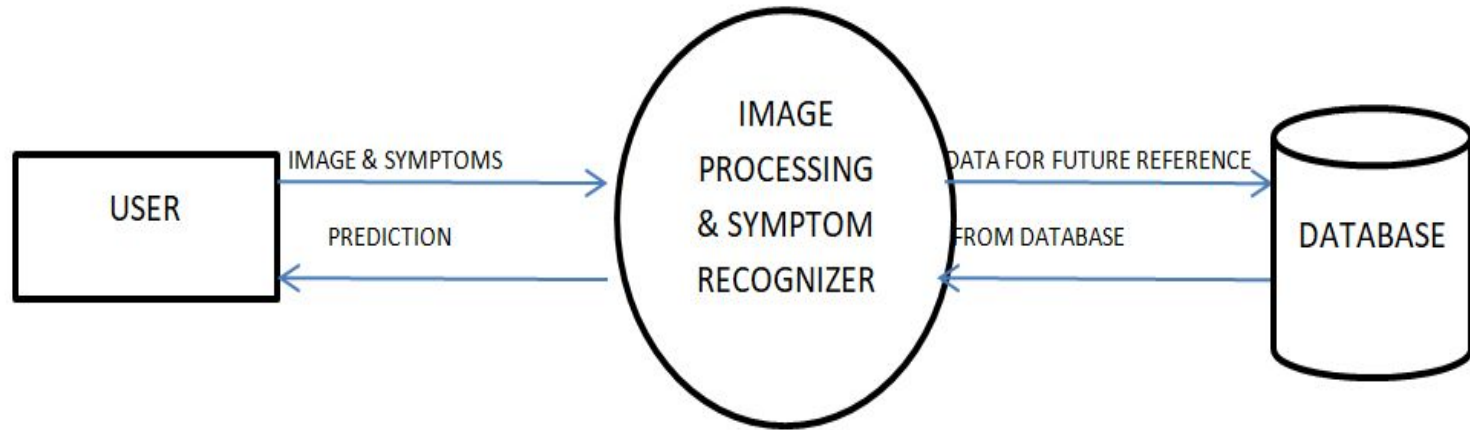
STRUCTURE CHART



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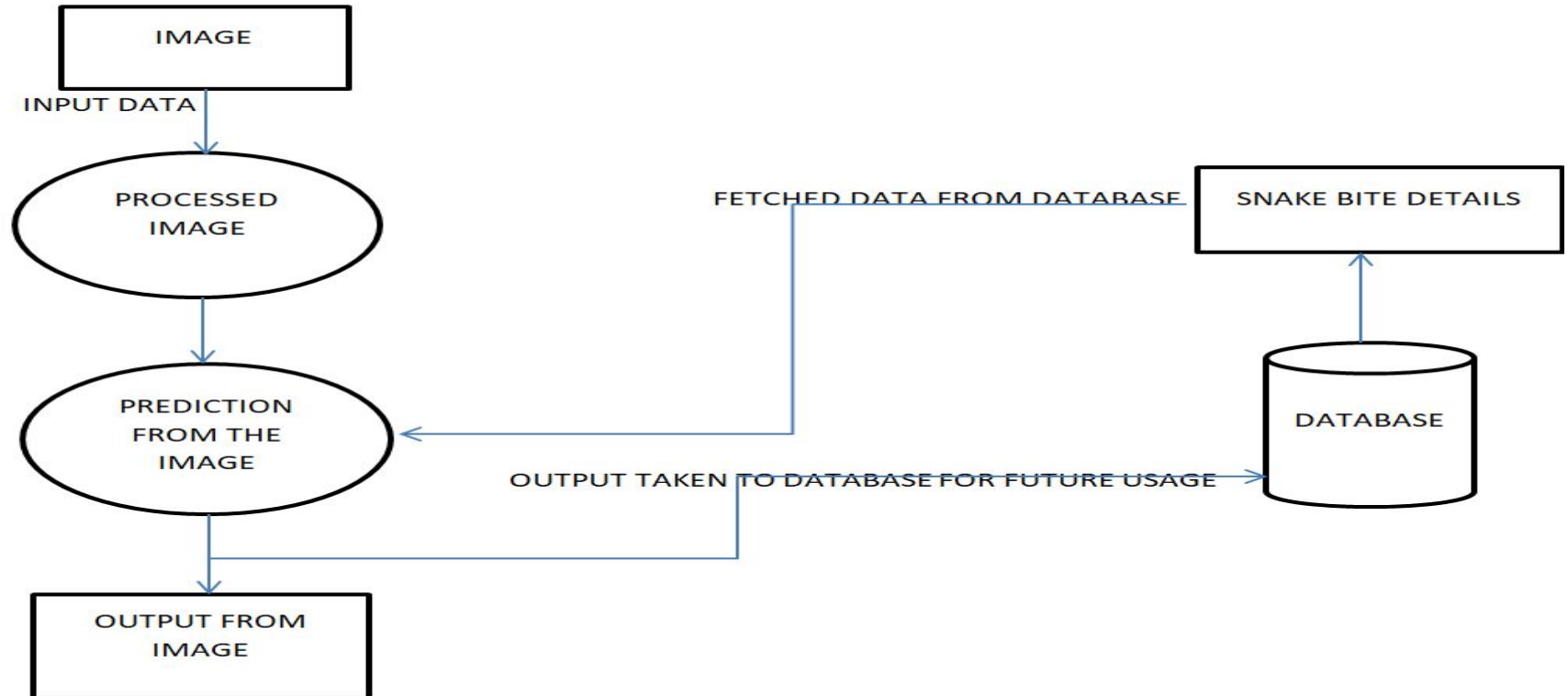
DFD & UML DIAGRAMS

LEVEL 0 (BASIC LEVEL)



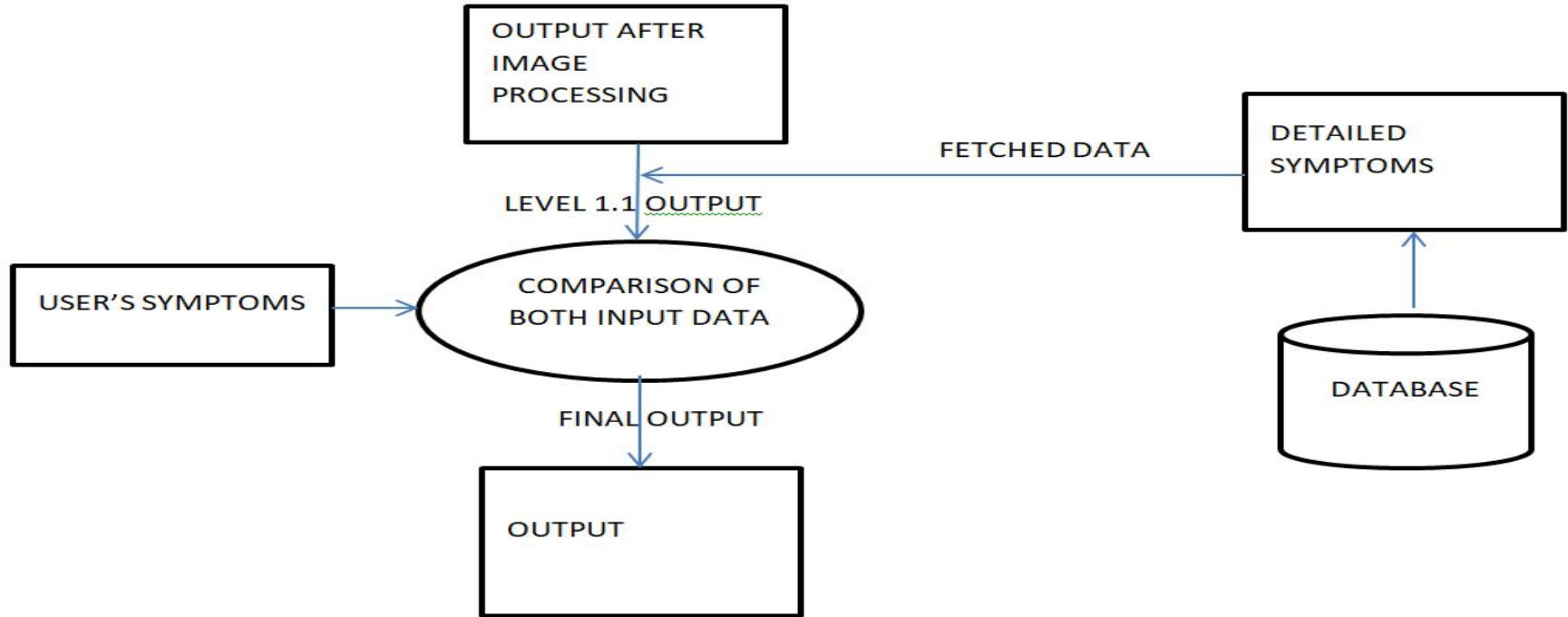
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LEVEL 1.1 (IMAGE PROCESSED PREDICTION)

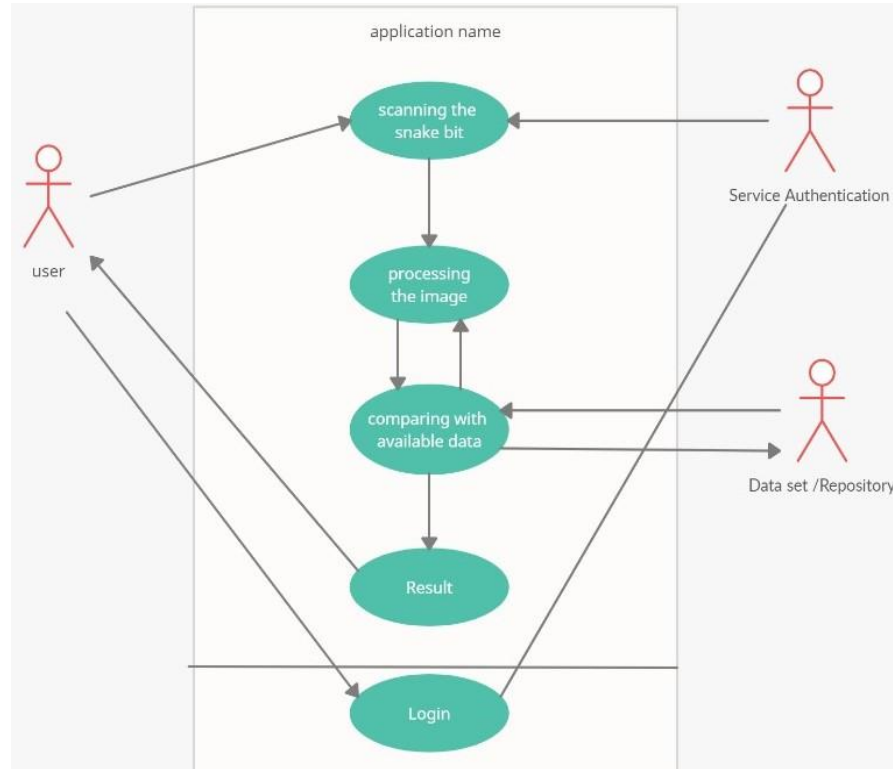


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LEVEL 1.2 (PREDICTION FROM SYMPTOMS)



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APPLICATIONS

- Medical Field
- Can be used in future for antivenom administration

CONCLUSION

- It is possible to identify which snake has been bitten and give the appropriate treatment
- This app can bring new benefits in the field of health
- Mortality rate due to envenoming can be decreased
- Implementation of this system avoids future medical negligence
- More cost effective.
- High accuracy
- Cross checking can help in pinpointing the species

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