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A REVIEW ON SECURE CRYPTO-BIOMETRIC SYSTEM FOR CLOUD COMPUTING

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ABSTRACT

Cloud computing has achieved maturity, and there is a heterogeneous group of providers and cloud-based services. However, significant attention remains focused on security concerns. In many cases, security and privacy issues are a significant barrier to user acceptance of cloud computing systems and the advantages these offer with respect to previous systems. Biometric technologies are becoming the key aspect of a wide range of secure identification and personal verification solutions, but in a cloud computing environment they present some problems related to the management of biometric data, due to privacy regulations and the need to trust cloud providers. To overcome those problems in this paper, we propose a crypto biometric system applied to cloud computing in which no private biometric data are exposed.

Keywords: Cloud Computing, Security, Biometric Data, Privacy, Crypto-Biometric System

INTRODUCTION

Cloud computing is a trend in application architecture and development, as well as a new business model. The success of many service providers, with Amazon as a remarkable example, has demonstrated that the model can be applied to a wide variety of solutions, covering the different levels defined in the cloud paradigm (SaaS, PaaS and IaaS). We can consider that cloud computing is at a mature stage, although there remain some limitations and challenges. Cloud computing brings important benefits for organizations that outsource data, applications, and infrastructure, at the cost of delegating data control. The information is processed in computers that the users do not own, operate, or manage. In this scenario, the user does not know how the provider handles the information, and therefore a high level of trust is needed. The lack of control over physical and logical aspects of the system imposes profound changes in security and privacy procedures.

EXISTING SYSTEM

the data are stored in the user infrastructure, information location and protection mechanisms are known in detail. In contrast, a characteristic of public cloud computing services is that the user is completely unaware of data location. This makes it impossible to ensure that national compulsory regulations are met. For example, European data protection laws may impose extra constraints on the handling and processing of data that are transferred to the USA, so the use of Amazon S3 resources to store biometric templates could infringe the law. Several techniques have been proposed for biometric template protection. Among them, cancelable biometrics [10] is one of the most promising. It satisfies a double

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goal: i) unrecoverability of the original biometric data from the stored biometric template (non-invertibility), and ii) the issue of a new biometric template when an existing template is compromised (renewability).

PROPOSED SYSTEM

In the proposed schema, once a large database with sample acquisitions has been collected, an UBM can be trained. We propose the training methodology in Figure 3 (the addition of new UBMs) to improve the flexibility and security of our system. To train a new UBM, computing resources are provided by virtual machines hosted in Amazon EC2. The administration application requests from Amazon EC2 the required virtual machines automatically, using the API it provides. The training application and the new UBM are loaded and executed in the machines in a distributed way to reduce computation time. Speedup is possible due to the high parallelizability of the calculus performed on biometric data.

SYSTEM ARCHITECTURE
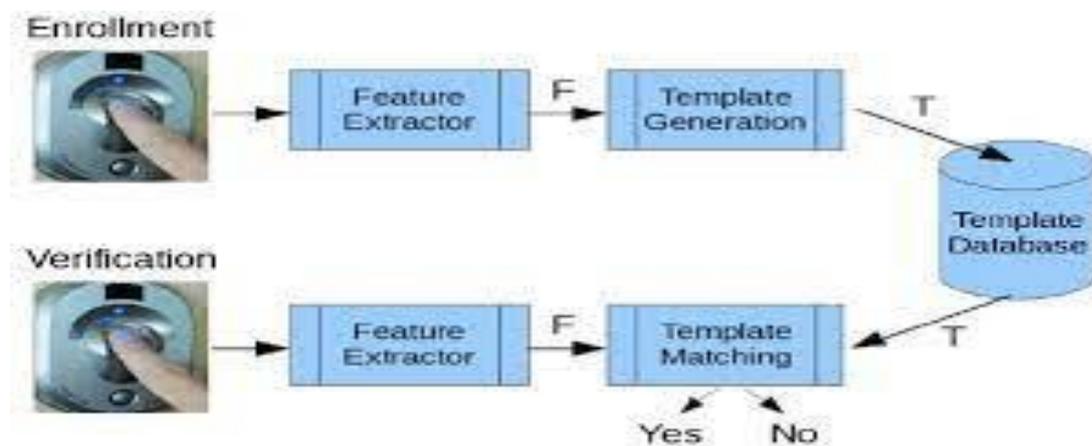
MODULES

1) Upload Fish Dataset:

using this module we will upload dataset to application

2) Run Interpolation, CLAHE & LAB:

using this module we will read all images and then apply interpolation, CLAHE and LAB to process all images and then normalize images and then split dataset into train and test

3) Run Decision Tree:

processed train images will be input to decision tree to trained a model and this model will be applied on TEST images to calculate prediction accuracy and other metrics

4) Run Logistic Regression:

processed train images will be input to logistic regression to trained a model and this model will be applied on TEST images to calculate prediction accuracy and other metrics

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5) Run Naive Bayes:

processed train images will be input to naïve bayes to trained a model and this model will be applied on TEST images to calculate prediction accuracy and other metrics

6) Run Propose SVM Algorithm:

processed train images will be input to SVM algorithm to trained a model and this model will be applied on TEST images to calculate prediction accuracy and other metrics

7) Comparison Graph:

using this module we will plot accuracy and other metric graphs

8) Predict Fish Status:

using this module we will upload test image and then SVM algorithm will predict whether image contains fresh or infected fish.

USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.
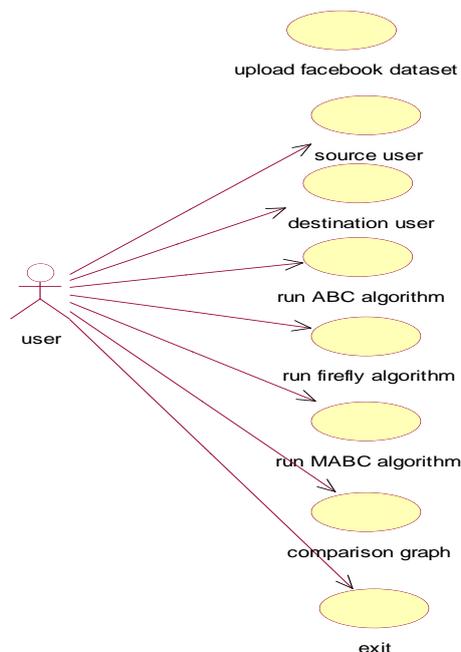
SCREENSHOTS
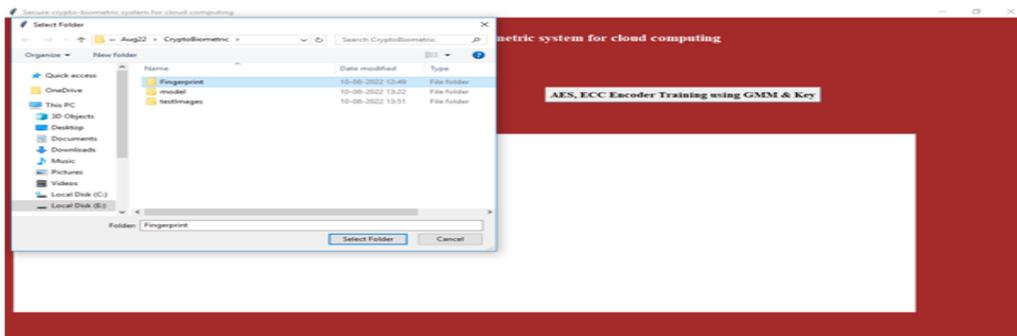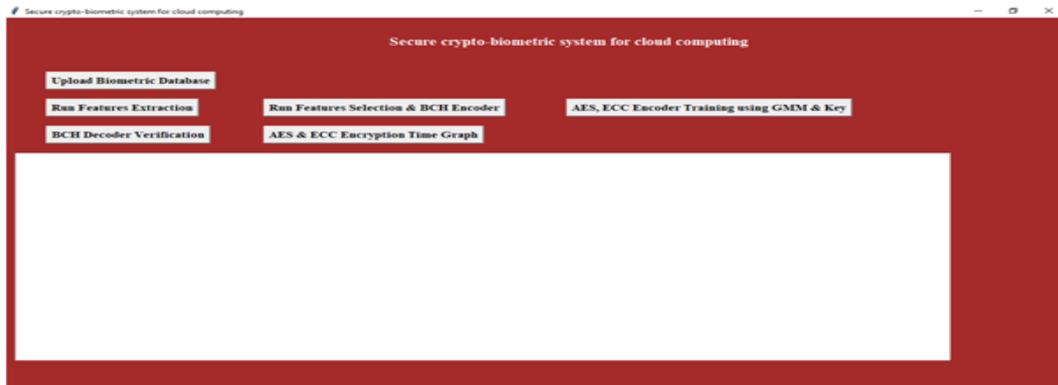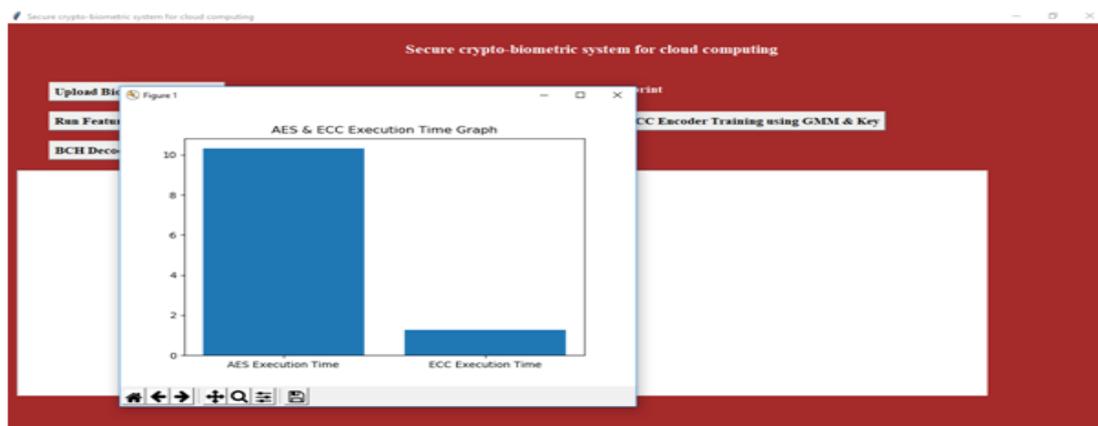
CONCLUSION

We introduce a significant machine learning-based classification model (SVM) to identify infected fishes in this research work. The real-world without augmented dataset (163 infected and 68 fresh) and augmented dataset (785 infected and 320 fresh) are used to train our model is new and novel. We mainly classify fishes into two individual classes: fresh fish and another is infected fish. We appraise our model with various metrics and show the classified outcome with visual interaction from those classification results. Besides developing our classifier, we applied updated image process ing techniques like k-means segmentation, cubic spline interpolation, and adaptive histogram equalization for transforming our input image more adaptable to our classifier. We also compare our model results with three classification models and observe that our proposed classifier is the best solution in this case.

This work contributes to bringing out a superior automated fish detection system than the existed systems based on image processing or lower accuracy. We not only depend on the modern image processing technique but also adjoin demandable supervised learning techniques. We prosperously develop the classifier that predicts infected fish with the best accuracy rate than other systems for our real-world novel dataset.

In the future, we stratagem to utilize various Convolutional Neural Networks (CNN) architecture for identifying fish disease more precisely and meticulously. Moreover, we will focus on the implementation of a real-life IoT device using the proposed system. Doing so can be a specific solution for the farmers in aquaculture to identify infected salmon fishes and take proper steps before facing any unexpected loss in their farming. We willwork with different fish datasets to make our system more usable in other sectors of aquaculture. We will also concentrate on increasing our existing dataset as salmon fish is one of the demanding elements worldwide.

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