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Face Mask Detection Using AWS REKOGNITION

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ABSTRACT

As per the current situation of covid-19 pandemic, many has been affected with this virus. As per the World health organization, there some symptoms which makes a virus effected. So, in this situation WHO had declared that every person should wear mask, apply sanitize to their hands and some other things to be healthy and to be far from virus affection. On base of this, when the pandemic will be open, the people will be gathered in a group in some places like restaurant, malls and many more places. so, we can't identify the persons without mask in the large group of people. so, to deduct the mask from the large group, I had developed a machine learning model which will deduct the person without mask. This model is been developed by the help of AWS services like Rekognition, lambda, Dynamo DB and OpenCV.

***Keywords:** Aws account, Aws Rekognition, Aws Lambda, Aws Dynamo Db, OpenCV.*

1. INTRODUCTION

In this pandemic safety become more important factor in the daily life. The services of all the places has been increased to provide a service with a precautions of corona virus. as we can take example of restaurants, now days the online food delivery applications are providing more safety on the bases of the covid19. as per on going in restaurants people needs a trust that the restaurant area is fully safe with the precautions of covid19. so, to make trust the customer, thee restaurants should have some rules like a person without mask are not allowed, sainted should be done, but we can't observe the person with mask in large groups at a time. So, to overcome these difficulties, I had developed a machine learning model using Amazon web services which is a cloud infrastructure. the model will deduct the person without mask by scanning the face of the person. This model is developed of some aws services like Rekongition , lambda , DynamoDB and OpenCV .

1.1 Cloud computing

The cloud computing is a technology which is used to pull the resources through the help of the internet. The cloud computing is on demand availability where we can use resources from anywhere virtually. It consists of data centre, servers which helps us to store the data and retrieve it. There are some cloud providers there are like Amazon web Service, Microsoft Azure, Google cloud platform, Oracle cloud, IBM, Alibaba cloud, VMware. There are some advantages of cloud computing there are like… Availability, Secure, Scalability, pay-per-use, flexible, access to automatic updates, Reduces IT cost.

2. OBJECTIVES

- To develop a model, easy to dedicate
- To reduce human effort on managing the observation of the mask
- To build a scalable and secure machine learning system using technologies like cloud computing

3. LITERATURE REVIEW

[1] In this paper the author discussed about the machine learning services. He talks about the way machine learning models helps user to dedicate the face recognitions using AI models. [2] In this paper the author talks about the different algorithms to recognise the face using different ways of machine learning. The author emphasizes that intent recognition. [3] In this paper the author emphasizes the bio metrics uses in the detection and identifying the face which makes accuracy in recognition. [4] In this paper the author discusses about the role of the face mask detection in the world wide and how it identifies the person with mask.

4. PROPOSED SYSTEM

Purpose of this project is to find whether the person has wore the mask or not. So that after detecting the total number of people without mask we can say that - this particular restaurant is not using the safety measures, and ordering the food from that particular restaurant is not safe.in this model I had used aws services like rekongition, lambda and DynamoDB.

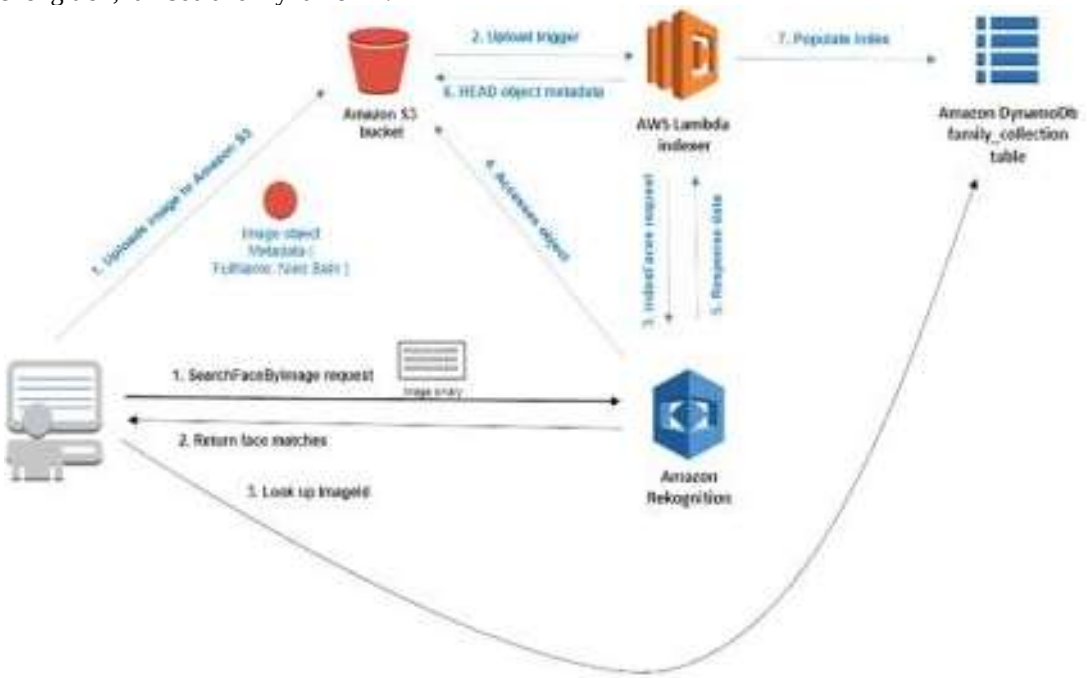


Fig 1: - System Architecture

According to the above flowchart , first when an user place his face Infront of the camera , the aws rekognition will deduct the face and redirect the image to match with the database and analyse the mask through help of the dataset and add the count value by the help of the Api which is installed using lambda and again it redirect to rekognition and gives the output . The output will be like if the person is with mask the count will be 0 or else if the person is without mask them the count will be plus 1.

4.1 Components

4.1.1 Amazon Rekognition

The aws rekognition is service in aws which is used to train the model with the datasets like image or some videos by deploying which help in rekognition the objects like face, masks facemask etc in this service we can also add tags, labels and custom the labels to the dataset which makes easier to identify the object. By the help of this service we can easily configure any type of API.

4.1.2 Amazon Lambda

The aws lambda Is a computer services, which is a serverless computing which helps to run the code according to events triggered and it automatically manage the event with the compute resources. By the help of this service we can create our own back end services.

4.1.3 Amazon DynamoDB

The DynamoDB is a database services which used to create a data in table form. Its full SQL managed database. In this service we can easily create, retrieve the data. it automatically manages the data traffic of tables over multiple servers and it consists of high performances.

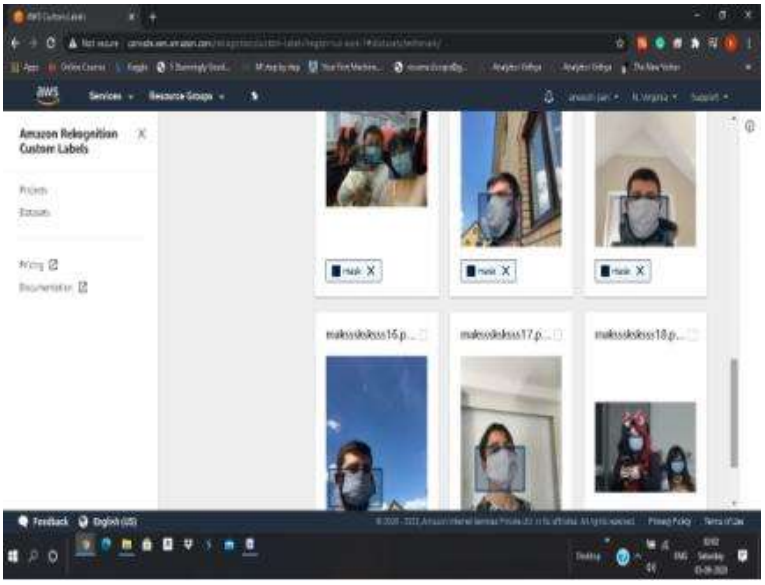
4.1.4 Amazon Simple Storage Service

The aws s3 bucket is a database service which is used to store the data or file or folder into a bucket which is high scale-able and easy to access and retrieve the data anytime. By this service we can even host a static website.

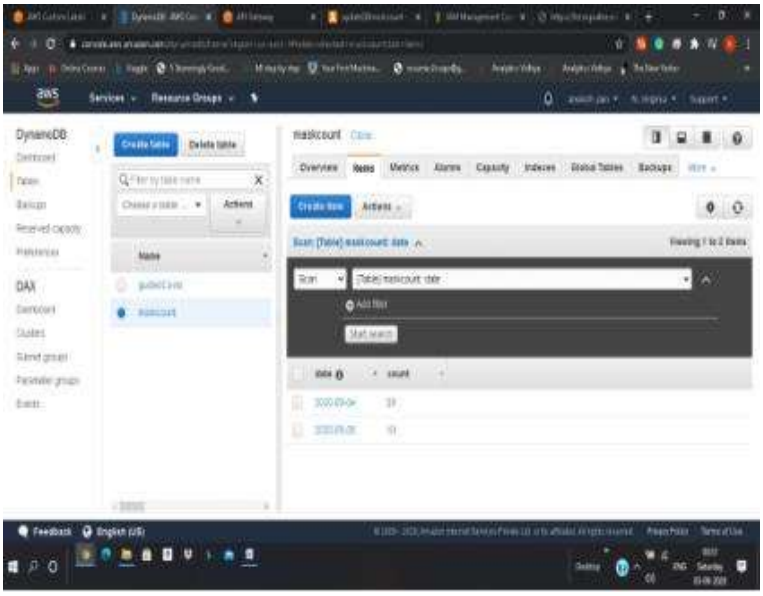
4.1.5 OpenCV

The OpenCV is a computer vision library which is used in case of images, videos detection through the camera. It's also used to develop a computer vision application.

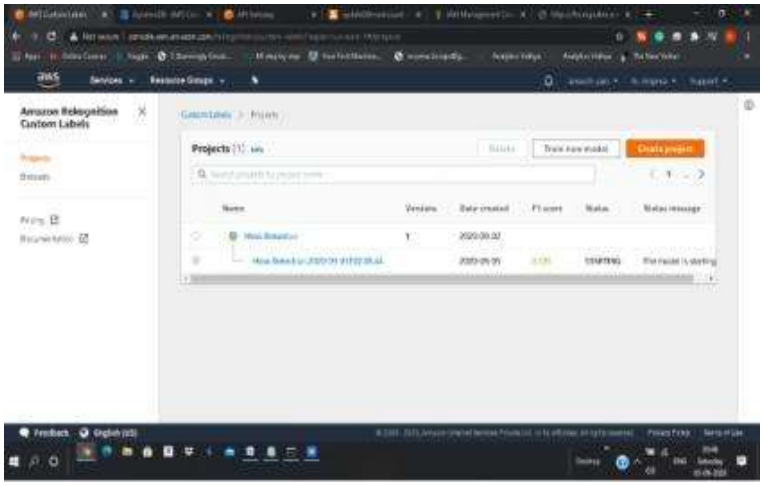
5. RESULTS



5.1: - label the Images



5.2: - Storing the data



5.3: - State of the Model

5.4: - Output without mask (Count value is increased to plus 1)

5.5: - Output with mask (Count value is remains constant)

6. CONCLUSION

The system with manual mask detection and automatic mask recognition did not have a recognition accuracy over 90%, due to the limited number of eigenfaces that were used. It will increase the count when the mask is not detected and vice versa.

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