



FACE MASK DETECTION APP

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ABSTRACT

A face mask detector is a method used to determine that whether a person has wear a mask or not. Face mask detector can very useful within an organization or business firm. One can just go with a mask with no problem and the one who is not willing to wear it will be shown a display message on a screen to ask them to wear it while entering the premises of the firm , organization or Educational Institution as well.

Keywords: Face mask detecting app, android application, android SDK java

1. INTRODUCTION

A Face Mask Detection System can be very useful within a organization or business firm. Instead of worrying about anyone not wearing a mask and asking everyone to do so is dangerous for the person who is asking them to as well it is a tedious work to do so , One can just go with a mask with no problem and the one who is not willing to wear it will be shown a display message on a screen to ask them to wear it while entering the premises of the firm , organization or Educational Institution as well . Wearing a mask helps protect those around you, in case you are infected but not showing symptoms. Ideally, As People have been neglecting the dangerous effects of this disease and to avert the spread of Covid -19. To overcome this problem we have come up with this project, that is, Face Mask Detection for prevention of Covid 19.

2. LITERATURE REVIEW

The coronavirus disease 2019 (COVID-19) outbreak was first identified in Wuhan in December 2019, which was declared a pandemic virus by the world health organization on March 11 in 2020. COVID-19 is an infectious disease and almost leads to acute respiratory distress syndrome. Therefore, the virus epidemic is a big problem for humanity healthy and can lead die in special people with background diseases such as chronic obstructive pulmonary diseases, chronic heart failure, diabetes mellitus, and kidney failure. Different medical, social, and engineering methods have been proposed to face the disease include treatment, detection, prevention, and prediction approaches .Plus, it provides better Safety and Prevention to the spread of Virus.

3. EXPERIMENTAL SETUP

For this project Python, JAVA and Arduino software programming language and for android application we have used Android Studio. For the database we have used SQL to store user details and item information. Their short information is noted below:

- **PYTHON:-** Python is a high-level, interpreted, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small- and large-scale projects
- **ARDUINO SOFTWARE:-** Arduino is an open-source hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices. Its hardware products are licensed under a CC BY-SA license, while software is licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL), permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially from the official website or through authorized distributors.
- **JAVA:-** Java is used as the server-side language for most back-end development projects, including those involving big data and Android development.

4. PROPOSED DETAILS METHODOLOGY

- Developing the project was considered very important to get protection from COVID-19 so after considering the scope and discussing with the group members we decided to create an Face mask detector.
- Then we will make our app in such a way that the user will have a convenient and efficient experience and we will also provide a review option for the users to give their reviews and opinions on how to improve our app.
- After getting our project designed by group members and with guidance of our mentor we will be starting the development process of the actual project.
- For application we will be using programming languages like **Python**-used for machine learning of our project, **JAVA**-used as the server-side language for most back-end development, for functioning of the application, which will be implemented within **ANDROID STUDIO** and Arduino Development Software.
- After getting our work done, we will perform several tests on our application to see if they are safe from being attacked, check if any bug appears and if it is vulnerable to any hacker.
- So after launching process there is no problem in our app or site this is our methodology of the project there can be certain changes in case of any problem

5. WHAT IS ANDROID STUDIO

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems or as a subscription-based service in 2020. It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development. Android Studio supports all the same programming languages of IntelliJ (and CLion) e.g. Java, C++, and more with extensions, such as Go and Android Studio 3.0 or later supports Kotlin and "all Java 7 language features and a subset of Java 8 language features that vary by platform version." External projects backport some Java 9 features. While IntelliJ states that Android Studio supports all released Java versions, and Java 12, it's not clear to what level Android Studio supports Java versions upto Java 12 (the documentation mentions partial Java 8 support). At least some new language features upto Java 12 are usable in Android.

6. WHAT IS PYTHON PROGRAMMING LANGUAGE

Python is a high-level, interpreted, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small- and large-scale projects. Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly procedural), object-oriented and functional programming. It is often described as a "batteries included" language due to its comprehensive standard library. Guido van Rossum began working on Python in the late 1980s as a successor to the ABC programming language and first released it in 1991 as Python 0.9.0. Python 2.0 was released in 2000 and introduced new features such as list comprehensions, cycle-detecting garbage collection, reference counting, and Unicode support. Python 3.0, released in 2008, was a major revision that is not completely backward-compatible with earlier versions. Python 2 was discontinued with version 2.7.18 in 2020. Python consistently ranks as one of the most popular programming languages.

7. WHAT IS JAVA PROGRAMMING LANGUAGE

Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. It is a general-purpose programming language intended to let programmers write once, run anywhere (WORA), meaning that compiled Java code can run on all platforms that support Java without the need to recompile. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of the underlying computer architecture. The syntax of Java is similar to C and C++, but has fewer low-level facilities than either of them. The Java runtime provides dynamic capabilities (such as reflection and runtime code modification) that are typically not available in traditional compiled languages. As of 2019, Java was one of the most popular programming languages in use according to GitHub, particularly for client-server web applications, with a reported 9 million developers.

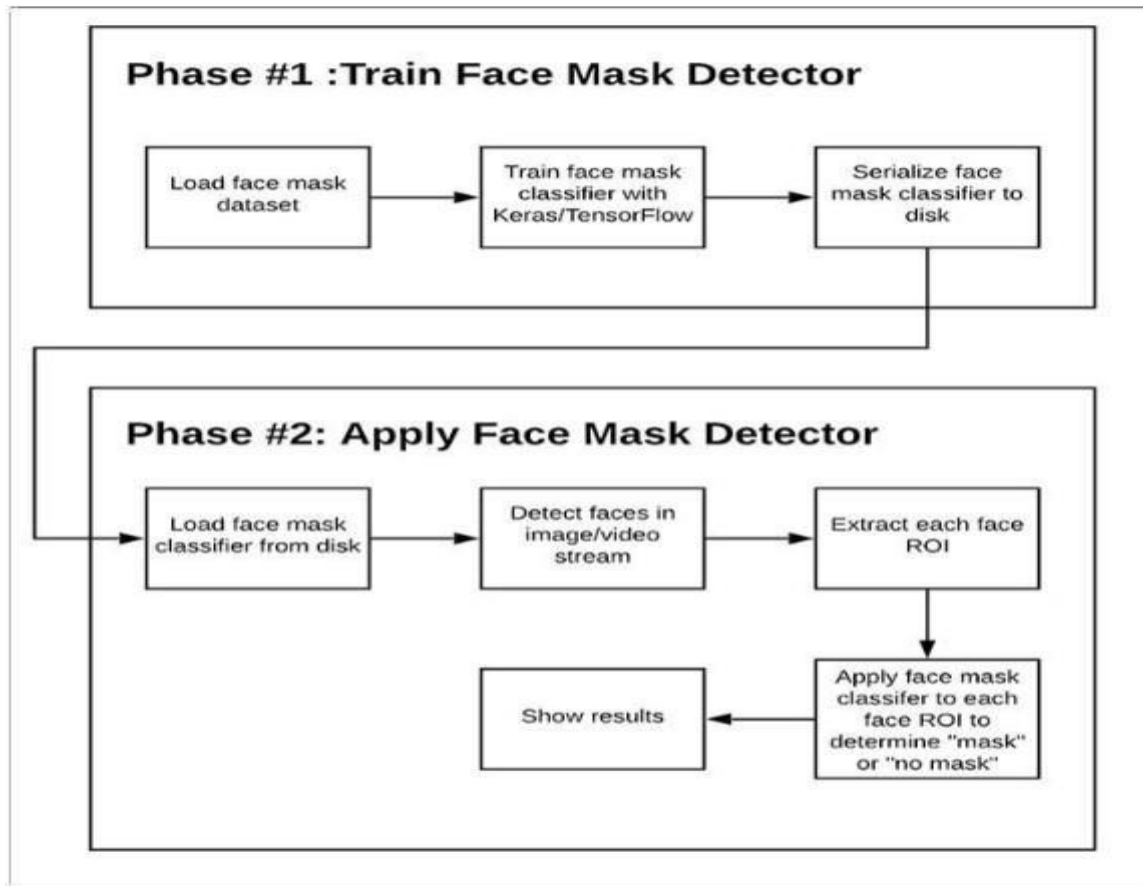
8. BASIC FLOW OF APPLICATIONS

Algorithm for Detection:

Step 1: Start the Software

Step 2: Person has to stand in front of the camera

Step 3: Display will indicate whether the person wore a mask or not. Step 4: If it indicates a mask then there will be not Indication of it. Step 5: Stop



SCOPE OF THE APPLICATION

Our App can be used in airports, theatres, malls, public gardens by embedding it to the door that will work accordingly and it will open as the status is green or anything similar to that will function or the door will open accordingly. It will help in Safety of the passengers, travelers or people around as well as increase safety in a convenient way. Thus, this Software/Framework can be used to provide safety and help in prevention of the dangerous Covid-19

9. CONCLUSION

We were successful in capturing and scanning face mask with help of camera visualization. The other part of the paper was able to successfully deliver good results about face mask information related to administrator. In future we look for some other facilities in this paper that are:

- More User Familiar graphical interface that will help novice user.
- Addition functionality by exploring system registry.
- Implementation of Security.
- Face Mask Detection System to be used at airports to detect travelers without masks.

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