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FACE MASK DETECTION USING IOT AND DEEP LEARNING FOR SAFETY OF COVID-19

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ABSTRACT

The spread of COVID-19 has reached pandemic proportions, with the virus already infecting over 200 nations in the past one year. The virus spreads swiftly via direct and indirect contacts and thus precautions are still required, particularly when vaccines are not yet accessible to many nations and most of the countries where vaccines are available are still in the initial phase of their vaccination drive. The World Health Organization (WHO) has issued standard guidelines for decreasing the transmission of COVID-19, pertinent amongst which is the appropriate use of face masks for protection against the virus [11]. The present ongoing study is designed on an Io T (Internet of Things)-based solution system related to face mask identification and classification. The IoT-based screening system is based on real-time deep learning models. Using a transfer learning technique, the proposed module can help to identify and distinguish persons who wear the face mask appropriately from those who use it poorly or those who do not use face mask, by using VGG-16, MobileNetV2, Inception v3, ResNet-50, and CNN models. The highest accuracy of 99.81 percent has been reported using VGG-16 model followed by an accuracy of 99.6 percent using MobileNetV2 version. A further categorization of the participants masks will be done as N-95 or surgical masks. We intend to compare the outcomes of our proposed system to currently established approaches, and we strongly believe that our system might yield beneficial information related to methods for curtailing local transmission of COVID-19 and also decrease human carriers.

Key Words: COVID-19 Rapid Screening; Face Mask Detection; IoT; Deep Learning; VGG-16, MobileNetV2.