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The Face Mask Recognition along with Alert System

Harshita Choukikar and Prof. Jigyasa Mishra
Department of Computer Science and Engineering
Madhav Institute of Technology and Science Gwalior, Madhya Pradesh, India
20cs1053@mitsgwl.ac.in

Abstract: *The use of face masks is important for public health safety at all times, not only during pandemics, since it helps to slow the spread of numerous infectious illnesses. In this study, we present a Face Mask Detection and Alert System (FM- DAS) that can instantly detect people who aren't wearing face masks and send out notifications as needed. The recovered face areas are then analyzed by a mask detection model, which is similarly based on CNN architecture, to ascertainwhether or not a mask is present. The alert generating module uses visual or aural clues to recognize people who are not wearing masks and notifies the appropriate parties. An extensive dataset with annotated photos of people wearing and not wearing masks is used to train the mask identification algorithm. The deep learning models are trained on this dataset using transfer learning techniques, which guarantees better performance in real-world circumstances. Real- time live video feeds from security cameras and other input sources are processed by the integrated system. Experiments show that the FM- DAS is reliable and efficient at identifying face masks in a variety of scenarios, such as changes in lighting, angles, and occlusions. Performance indicators and user comments verify how well the system processes live video streams and sends out timely notifications. Face mask detection systems have attracted a lot of attention lately due to its possible applications outside the realm of pandemics such as COVID-19. The extensive Face Mask Detection and Alert System presented in this study is intended to function as a permanent safety precaution in public areas, workplaces, and critical infrastructure settings. The three primary components of the FM-DAS are mask detection, face detection, and alarm production. First, a powerful convolutional neural network (CNN)- based face identification model locates and extracts facial regions from input pictures or video streams. The recovered facial areas are then analysed by a specialized mask detection model, which is likewise based on CNN architecture, to ascertain whether or not face masks are worn. The alarm production module then uses visual or audio signals to initiate warnings when it detects people who are not wearing masks. Acquiring a varied dataset with annotated photos of people wearing and not wearing masks is necessary for training the mask identification machine. The trained models are smoothly incorporated into a single system architecture that can process various inputs, such as live video feeds from security cameras in real time. The system promotes public health and safety in a variety of settings and throughout a range of time periods by acting as a continuous safety measure. In addition to helping to avoid pandemics, this research provides a useful method for automating the enforcement of face mask procedure in public settings.*

Keywords: Public Health, Safety Measure, Public Health, Alert System, Face Mask Detection, Pandemic Preventions, Real Time Monitoring, Computer Vision

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