

Chapter 6

An Effective Video Surveillance System by using CNN for COVID-19

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ABSTRACT

An effective video surveillance system is a challenging task in the COVID-19 pandemic. Building a model proper way of wearing a mask and maintaining the social distance minimum six feet or one or two meters by using CNN approach in the COVID-19 pandemic, the video surveillance system works with the help of TensorFlow, Keras, Pandas, which are libraries used in Python programming scripting language used in the concepts of deep learning technology. The proposed model improved the CNN approach in the area of deep learning and named as the Ram-Laxman algorithm. The proposed model proved to build the optimized approach, the convolutional layers grouped as 'Ram', and fully connected layers grouped as 'Laxman'. The proposed system results convey that the Ram-Laxman model is easy to implement in the CCTV footage.

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INTRODUCTION

This chapter introduces the effective video surveillance system for mask detection and social distance maintenance in this COVID-9 pandemic, people unintentionally forget the mask detection and social distance maintenance in public places (Zou, L., et al., 2020). The proposed mechanism most necessary to implement in mobile applications and CCTV footages to alert the people in this COVID-19 epidemic situation, that would be a great helpful for people and the public in the identification of mask detection and they are maintaining the social distance or not maintaining the social distance in schools, movie theaters, hospitals, temples etc.. (Pan, X., et al., 2020).

The use of a face mask helps avoid the transmission of diseases and protects the person from contracting infectious germs in the air (Kimball, A., et al., 2020). If someone cough, chat, sneeze, they will leak germs into the air that will affect anyone in the vicinity. Masks are recommended as clear filters to discourage respiratory gouts from getting into the air and to other individuals as they wear the mask coughs, sneezes, speaks, or lifts their voice. Face masks are part of an infection management plan for the avoidance of cross-contamination (Li, R., et al., 2020). Wearing a mask in COVID-19 pandemic to avoid to spreading virus from person to person who are in close contact. If new scientific research becomes available, CDC Mask Guidelines will be revised (Furukawa, N., et al., 2020). CDC acknowledges that in some case or with certain individuals it might not be possible to wear masks. Wearing a mask in certain cases provides the confidence and gives the physical or mental health conditions and not only stop the transmission of COVID-19 virus and stop the various affected infections. And also wearing a mask provides various difficulties like hearing problems and breathing problems, when climbing the steps, it's difficult to breath(Oran D.P., & Topol, E. J., 2020). Dream by using a transparent mask in this case. If there is no visible mask, consider whether you are able to talk by writing, use a closed underline or minimize sound noise when wearing a mask that covers the lips (El Baz, S., & Imzilm, B., 2020). Persons involved in high stress sports cannot wear a mask, such as racing, as it creates breathing difficulties. If the mask cannot be worn, recommend carrying out the operation at a venue with improved airflow and air circulation for instance indoor vs. outdoor (Huang, G, B., et al 2008).

Motivation

In USA implemented the effective video surveillance system and operate the active CCTV footage, the administrators of the individual organizations keep on identifying the video surveillance footage (Zou, L., et al., 2020). The surveillance system strictly following at the elementary schools, middle aged schools and high school campuses. Many schools of USA, UK and Japan and city polices observed the live CCTV footage (Pan, X., et al., 2020). The middle-income countries like India plan to establish the observation of live CCTV footages in schools and class rooms. The high-income countries like Andorra, Bahrain counties established the live CCTC footages at the schools and observed the safety measurements and also prevents the crime rate. According to educational researchers provides the two types of operational feasibility in COVID-19 such as uncontrolled mask application environment and controlled mask application environment, no one has evaluated the video surveillance in schools wash rooms and school buses. In addition, some of the schools which use CCTV video surveillance but are not considered the security measurements (Kimball, A., et al., 2020), the following Figure 1 describes the video surveillance system graph which used in USA schools and maintained the security precautions Lin, K., et al., (2020).

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