Chapter 7 Face Recognition based Smart Door Lock System using IOT and Machine Learning

Manoj Kumar Behera and S. Chakravarty

Dept. of CSE, Centurion University of Technology and Management, Odisha, India

Abstract:

In the world of rising technologies; individuals have resorted to biometric unlocking system but biometric locking system has its disadvantages like palms with oily substances and sweat didn't recognized by the system. The most hazardous factor in biometric system is the surface touched by several people which can be a hotspot for transmitting deadly viruses; it is quite evident in the recent outbreak of COVID-19 pandemic. To overcome all these disadvantages locking system with face recognition is a revolutionary effort. So in this research, it recommends a door lock security system which is capable to unlock the door with a simple snap of our face. This security system has been developed by integrating deep learning and IOT. This security system is developed using the Raspberry Pi, Pi Camera, and Solenoid Lock. The distinctive feature of this system is that it uses the deep learning face recognition technique which increases the classification accuracy. The proposed system yields 96.28% accuracy with a minimum sample size. The relay board is designed to trigger the voltage instead of the current due to which it won't fail even if a low Ampere current is provided to the system. In emergency conditions, if any unauthorized entry