"Haven's Light Is Our Guide"

Rajshahi University of Engineering & Technology, Rajshahi

Department of Electronics and Telecommunication Engineering

Project Report

Project Title: Facial Recognition Based Entry Logging and Intrusion Detection with Web Alerts and Panel.

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Submission Date: December 19, 2020

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DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING
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CERTIFICATE

This is to certify that the project entitled "Facial Recognition Based Entry Logging and Intrusion Detection with Web Alerts and Panel" by Mahir Labib Chowdhury, Roll No. 1604006 has been carried out under my supervision. To the best of my knowledge, this project work is an original one and was not submitted anywhere for any degree or diploma.

Supervisor

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Declaration

This is to certify that this project work is my own work and I have not submitted elsewhere for the award of any degree or diploma.

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Abstract

In the modern world the concept of a smart home and smart facilities are not a distant dream anymore. Ideally, using the smart features offered by the modern era we want to monitor our home or facilities in detail. Not only we want our home or facilities to be secure from the intruders and prevent the theft or damage of our belongings we also want to keep tabs on who is entering and leaving the home or facility at what times. This can be useful for identifying missing elements to solving serious crimes.

Simple 'Access control keypads' and 'Key fobs' alone are not secure enough anymore. Since 'Key fobs' and passwords can easily be stolen. I propose a 'Two Factor Authentication System' for access to the home or facility using a combination of both 'Previous knowledge' (such as passwords) or 'Belongings' (such as key fob) and a 'Biometric Vector' (such as Facial Data). This will ensure the person having the right key is also the right person with the adequate clearance or permission to enter the home or facility. There is one more thing to note, often 'The chain is as strong as itś weakest link', so we have to think about other entry point than the main door. We can add sensors to windows and other potential entry point for intrusion detection.

We have achieved this project goals with a combination of single board computers and micro controllers as the main processing side of the project. Networking elements and data collection points (i.e. cameras and sensors) were also integral part of this project.

Key words: Raspberry Pi, Home Automation, Smart Home, Intrusion Detection, Home Security, Face Recognition, Visitor Monitoring, Entry Logging