**ENHANCE WMSU CAMPUS SECURITY THROUGH FACIAL RECOGNITION MONITORING SYSTEM**

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**I. Background of the Project**

Numerous nations presently utilize public video surveillance cameras (CCTV’s) as an essential tool to screen populace occurrences, developments, and prevention of crime and terrorism, both within the private and public sectors. As of 2021, according to Visual Capitalist article by Avery Koop, India’s two cities Chennai and Hyderabad, are recorded to have the most CCTV’s installed, Chennai with 657 CCTV’s per square km and Hyderabad with 480 CCTV’s per square km. Every year in India, tens of thousands of children go missing, and many are trafficked to work in eateries, handicraft industries, brick kilns, factories, or into begging and brothels. Due to these events, Chennai police authorities developed a facial recognition app, scanned 3,000 records, and were able to help them reunite half of the missing children with their families in January 2020. <https://www.visualcapitalist.com/mapped-the-top-surveillance-cities-worldwide/>

[Indian police use facial recognition app to reunite families with lost children | Reuters](https://www.reuters.com/article/us-india-crime-children-idUSKBN2081CU)

In the Philippines, CCTV's are getting popular due to their effectiveness in monitoring crime and accident-related incidents. Populated cities like Makati, Metro Manila, Quezon, etc., are implementing CCTV as an essential tool to help law enforcement keep the peace, order, and discipline the lawbreaker.

Facial recognition is a biometric software application capable of uniquely identifying or verifying a person by comparing and analyzing patterns based on the person’s facial contours; According to Sunstar PH “Zamboanga City's Security and Surveillance Coordinating Office (SSCO) Command Center was launched on May 6, 2019”. It is a facility that serves as the center of all surveillance cameras installed all through the city. Its principal function is monitoring and crime prevention. It shows that CCTV cameras are the primary tool currently used nowadays to implement peace and order. Similarly, many schools in the city used the same method to monitor all activity happening on their school premises. Western Mindanao State University had CCTV cameras installed in different locations throughout the school. With the help of CCTV cameras, crime prevention and monitoring of the students are achieved effortlessly. Although it serves useful, CCTV cameras can't do all the work necessary to identify individuals caught on cam. It is true for circumstances such as crime response personnel arriving at the scene late or individuals caught in the act escaping before response teams are dispatched. The purpose of this project is to fill in the CCTV's shortcomings; Today, universities and colleges are seeking technological innovation to re-open their campuses safely for the already started school year; This will be a challenge for everyone, that is why a solution is needed; with the system that is being proposed we’re trying to provide a better way to monitor, identify and give better security to each and every student, teachers, and staff in the campus with hygienic, seamless and preferably touchless, high-assurance identity management.

The proposed system "Enhanced Security Through Facial Recognition with Neural Network" will bring new technology and upgrades to CCTV's and adding new capabilities.

This study aims to enhance and improve the security of Western Mindanao State University. The facial recognition technology is integrated on CCTV around the school campus and into the school attendance system to enhance security.

**II. Statement of the Problem**

This project is established to improve Western Mindanao State University's security and upgrade the currently used attendance system of the school. For a large university security personnel are not enough to secure the school premises, therefore the addition of a facial recognition system would be implemented for much better security.

**III. Objectives**

This project's general objective is to develop a system that implements public security through the use of Facial Recognition in the Western Mindanao State University Campus. Specifically, this project sought to achieve the following objectives:

● Develop a facial recognition system that is capable in storing and recording the facial image with personal information of student, faculty,staff and other WMSU asssociates.

● Aid the disciplinary officers of WMSU in monitoring and crime prevention.

● Develop a facial recognition system that is able to recognize a face covered in facemask.

● Identify the signifiance of having a facial recognition system as a tool for monitoring crimes and accidents around WMSU campus.

**IV. Significance**

This study is constructed to evaluate the effectiveness of instigating a facial recognition system at the Western Mindanao State University campus.

* Student, faculty, and staff - the individuals required to register their faces in the system. The registered faces will then be used to track the individual in and out time at the school campus.
* WMSU Security Officers - the study will be beneficial to security officers of WMSU, for it will be used in monitoring crime-related circumstances.

**IV. Scope and Limitations**

The projects Scope are as follows:

● Administrator - Can log in into the system and do the following features; register face, search face, remove a registered face from the system.

● Students, Faculty, and Staff - The students, faculty, and staff of WMSU must register their faces in the system and their names.

Limitations

* Cannot scan individuals inside the cars or wearing helmets.
* The effectiveness of the system depends on the camera quality and computer's processing power. ( Needs high-end techs).
* It can only be accessed offline.
* Cannot recognize unregistered individuals.