

## ABSTRACT

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*Industry 4.0 is a technological evolution where every device can communicate with each other using an internet network without being limited by distance. One example is CCTV cameras. CCTV (Closed Circuit Television) is a camera that has a function to spy on, monitor, or record a situation of a place for security purposes. In this era, many CCTV cameras have been integrated with the internet network, allowing users to access them from anywhere, this is certainly a good thing. But on the other hand, this can cause other people to also have the opportunity to get the same access due to factors such as security on the router and malicious code that may exist in it. Fortunately in that era access to IoT devices such as Arduino, ESP32, etc. are available to everyone, allowing to design a system without any intervention from other parties. ESP32 Camera is an ESP32-based module that has a 2MP onboard camera that is useful for various IoT applications that require vision features. This module has a small dimension and a low price. In addition to this module, MAX9814 is also used, a low noise microphone module that is useful as a trigger in the image capturing process which is then sent to computer whenever it detects any volume increase that exceeds the threshold specified in the program. With this trigger feature, the use of conventional doorbells at home could be eliminated. The image that has been received by the computer will carry out two detections using AI, namely fence detection and object detection. The system is also integrated with a 3D WebGL-based frontend that displays visualizations of the user's home.*

*Keywords: ESP32 Camera, MAX9814, AI, 3D WebGL*