Background of the Study

The most recent technological advancements have resulted in automation and digitization in practically every field, which has had an impact on a wide range of applications. This has led to a massive flow of data from all industries, with the information included in that data serving as a crucial component for the advancement of each individual, group, state, nation, and so on. Depending on who handles it, these data with vital information might be seen in a constructive or negative way. Therefore, taking precautions becomes absolutely necessary to secure the data from unauthorized access. This opens the door to creating a system to spot unusual activity in potentially dangerous places, especially our home.

Keeping up with the most recent trends can be difficult, especially given how quickly technology develops and how frequently new firms appear. The future and any new technologies that might emerge in the next few years might be foreseen, nevertheless, by keeping up with home security trends. Some of the home security trends that are likely to dominate the market as time goes on are Artificial Intelligence (AI) adoption, which is already a ubiquitous technology in many aspects of life, from smartphone voice assistants to futuristic, self-driving cars; smart outdoor lighting, which is a critical component of home security that focuses on creating smarter solutions; and modern home security systems are quite advanced and secure, but they still have their fair share of vulnerabilities. Companies must focus on enhancing their cybersecurity measures to protect their customers as the cybersecurity landscape continues to evolve. The concept of home security is not new, but the tools and technologies people use are. It’s no surprise that smart systems are evolving due to the Internet of Things (IoT), low costs, easy installation, and the peace of mind they bring.

A larger family of machine learning techniques built on artificial neural networks and representation learning includes deep learning. The fuel that powers artificial intelligence is data, according to which any type of information can be considered data, whether it is organized or not. Deep learning operates on the basic tenet that if we give information to computers, these will label it in a format that is both beneficial and not useful. This strategy can be used for a variety of things, like identifying people in order to spot suspicious activity and other things. When dealing with faces, we can train models to recognize faces that security officers are looking for, such as individuals involved in criminal activity or individuals who are suspected of crimes. In situations involving questionable activity, we must not only teach our model to recognize those activities but also train our model to distinguish between activities that are suspicious and those that are typical of our society.

In order to detect human activity using a video surveillance system, video frames are processed sequentially and any suspicious activity is analyzed according to Puja Thombare et al. (2021). In the field of artificial intelligence, image analysis and computer vision are sub-domains for the detection of human behaviors. The research focuses on the use of Scale-Invariant Feature Transform (SIFT) features to identify potentially dangerous or disruptive human activities so that the corresponding system can be alerted. Based on their features, the study explains how to spot suspicious conduct such as someone brandishing a pistol, cutting themselves with a knife, or hitting someone in the face. Scale-Invariant Feature Transform (SIFT) and Multiple Sequence Alignments (MSA) are used to extract features from the video, while frame-by-frame analysis is used to track the suspicious object and its actions. In their work, they seem to have an idea of how to build a system that can detect human suspicious behavior. [ INSERT IMPLICATION LIKE RELEVANCE SA STUDY, OR NAGING REASON BA TO PARA MAGCOME UP SA PAPER NA TO?, OR ITO BANG RRL NA TO AY NAGSUPORTA SA ASPIRATION NINYO NA GAWIN TONG PAPER?]

Based on the study of Rafarat Hussain Arain et al. (2019), sensitive locations can now be protected with cutting-edge video surveillance systems. Deep Neural Networks and Artificial Intelligence have been integrated into these intelligent systems in order to automatically detect questionable human activity. As a conclusion of a thorough comparison of numerous proposed approaches, this study is the outcome of a comparative analysis of fragments derived from a survey of 42 articles available at Institute of Electrical and Electronics Engineers (IEEE), Springer, and Elsevier online repositories. As a foundation for intelligence in these systems, many technologies have evolved based on intelligent techniques, including neural systems, support vector machines, saliency map features, and so on. A road map for future research is provided at the end of the paper, along with a list of methodologies and approaches that were employed to address specific research issues. [DELETE THIS ONE, ADD THIS TO RRL]

(INSERT STATISTICS ABOUT THE CRIME RATE IN TERMS OF HOME SECURITY IN THE PHILIPPINES)

(ITO BANG PROBLEMA NAGEEXIST LANG SA PHILIPPINES? INCLUDE FOREIGN INCIDENTS)

Human activity detection is a way for video surveillance systems to automatically process video sequences and make smart decisions about what is happening in the videos. It is one area of computer vision and artificial intelligence that is getting bigger. There are a lot of surveillance cameras in many places, but they are only watched by people when they hear about strange behavior. Otherwise, the videos are kept in archives and never used. By making algorithms that can automatically track people's movements and take action when they do something suspicious, it will be possible to process what people try to do with suspicious activity inside their homes in real time. It will help with security and make sure that everyone is safe. [DISCUSS THE PROBLEM TO SOLVE]

INSERT SUMMARY OF BACKGROUNG OF THE STUDY

REMINDER: KAPAG MAY ACRONYM LIKE AI TO ARTIFICIAL INTELLIGENCE, SPECIFY MUNA ANO MEANING NUN, TAS PWEDE ULIT ULITIN ANG PAGGAMIT.