CHAPTER 1
INTRODUCTION

1.1. Background

The number of cases of Covid-19 transmission is still increasing, causing a high number of victims. This problem causes a lot of losses, such as in the economic sector and other sectors. One way to reduce the high rise in Covid-19 cases is to prevent transmission. Various ways have been attempted by the government to prevent the transmission of the Covid-19 virus, one of which is by maintaining a distance with social distancing. Unfortunately, not all people comply with the health protocol and the government also cannot fully monitor all the people, so the role of other communities such as business owners, security forces, and other parties is very much needed in monitoring the health protocol.

One of the solutions to overcome these problems is to create a social distancing detection system where the system sounds an alarm when there is a violation and stores the violation data in a database, which can be accessed through the information system on the website or smartphone application. The method used for detecting human objects is the SSD method with Euclidean Distance calculation to calculate the distance between objects. Data for the system is obtained through hardware consisting of NVIDIA Jetson Nano, cameras, Wifi adapters, and other supporting devices.

With the social distance detection system, it is easier for law enforcement to monitor the order of distance maintenance because of the automatic bell when a violation is found. The system also makes it easier for business owners to monitor the movement of data on health protocol violations at their business locations, and use this data as a reference for further policy revisions.

1.2. Problem Formulation

1. How to use computer vision technology to detect health protocol violations to anticipate the increase in the number of cases of Covid-19 transmission?
2. How is the performance of the system using the SSD method and the designed hardware in detecting cases of distance violations?

1.3. Scope

1. Detection of violations of the distance between people or crowds within camera range.
2. Needs to be in room lighting.
3. People cannot be detected if they are obstructed by objects other than humans.
4. Area location of public space, specifically mall.

1.4. Objective

The goal of this research was to find out the performance of the system using the SSD method and the designed hardware in terms of detecting violations of health protocols in the form of social distancing.