

UNIVERSITI TEKNOLOGI MARA

**SECURING A PARAMETER
OF AN AREA USING
ARDUINO BASED
MULTI-ROBOT COORDINATION**

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ABSTRACT

Introducing multi-robot for securing a parameter of an area, most of the security task can be taken over by these robots. The needs of these robots are because they are more advanced and more effective in most of the approach that we used until today. For an instance, human sometimes may be careless and make mistakes during their security duty and that may cause troubles. In addition, human bodyguards place their life on the line every time they go to work, and the best way to reduce unnecessary lives lost of innocent people is to replace them with these robots. Also, these robots work the same as the intrusion detection system but way better because these robots have mobility advantage. This project uses Arduino UNO as its microcontroller central unit that are connected with Arduino IDE, Motor Shield Controller, Ultrasonic sensors, Bluetooth and Wi-Fi Module. Together combined all of them, will executes a program of Securing A Parameter of An Area Using Arduino Based Multi-Robot Coordination.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Definition of secure may allude to security which implies being ensured against danger or misfortunes. In this project context, secure means security of guarding a zone or an area. Physical security, safety efforts that are intended to deny unapproved access to offices, hardware, and assets. Data security, protecting data from unauthorized access, use, divulgence, interruption, change, scrutiny, assessment, recording or obliteration. Secure communication, when two entities are communicating and don't need an outsider to tune in. The case of regions that are additionally required to be protected, for example, high valued structures or things, weapon storage, gold or cash stockpiling and so on. These regions unquestionably require security.

Nowadays, in terms of securing and security, there are a lot of approach that human used to guard their valuables things. Based on my research, security that are currently being deployed to secure areas are human bodyguards, intrusion detection systems, CCTV, vault rooms, advanced lock password systems and many more. Some of the sample are; using security human bodyguards fully armed to guard a bank, using a vault room to keep secret and confidential information and using intrusion detection systems to detect intruder from military's weapon storage.

By introducing multi-robot for securing a parameter of an area, most of the security task can be taken over by these robots. The needs of these robots are because they are more advanced and more effective in most of the approach that we used until today. For an instance, human sometimes may be careless and make mistakes during their security duty and that may cause troubles. In addition, human bodyguards place their life on the line every time they go to work, and the best way to reduce unnecessary lives lost of innocent people is to replace them with these robots. Also, these robots work the same as the intrusion detection system but way better because these robots have mobility advantage.