



اَوْنُوْرَسِيْتِي تِيْكْنُوْلُوْجِي مَارَا
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TEKNOLOGI
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**UNIVERSITI TEKNOLOGI MARA
CAWANGAN JOHOR KAMPUS PASIR GUDANG**

**INTEGRATED IOT AND VOICE-CONTROLLED HOME
AUTOMATION SYSTEM**

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ABSTRACT

Advancement in smart home technology involves the use of voice recognition devices to control all home appliances, becoming a trend. The integration of Internet of Things (IoT) technology and voice-controlled home automation systems has revolutionized our interaction with homes. Many individuals wish for their homes to be equipped with IoT and voice-controlled technology, maximizing efficiency in tasks such as controlling appliances effortlessly while on the couch and improving home security. Currently, IoT is an active research area for security, comfort, and reliability, widely used to control appliances remotely. This study proposes voice-controlled house appliances and IoT monitoring capability. The aim of the study is twofold. First, to create a home automation system using Arduino and a voice recognition microphone to detect and convert voice commands into specific actions. Second, to develop a user-friendly model of a home automation device, allowing manual customization of voice commands for specific actions. This system aims to make households more reliable, marketable, and comfortable.

Keywords: Voice-recognition IoT, Arduino, security, reliability, marketable.

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Chapter 1

INTRODUCTION

1.1 Background of Study

The way individuals interact with their homes has changed dramatically with the introduction of the Internet of Things (IoT) and voice-controlled home automation devices. The lighting, heating, security, and entertainment systems in houses may now all be managed remotely thanks to these technologies. These technologies have NOT been combined, yet, to provide a unified system that provides a smooth and simple user interface. The combined IoT and voice-controlled home automation system that this project offers will use the strength of these technologies to produce a complete home automation solution. A central hub which is Blynk app is in charge of managing and regulating the numerous home systems that will be connected to the system's many sensors and smart gadgets. The system will also have voice control capabilities, enabling customers to manage their houses with simple spoken instructions. The main goal of this project is to develop a functional prototype that is accessible, easy to use and easy to customize by the user.

1.2 Problem statement

In the 21st century, the use of Artificial Intelligence (AI) and other technologies has made human work easier. But this has also made some people lazier, especially in daily tasks. For example, a simple task like getting up and switching off the fan is too demanding for some people. This is understandable due to distractions such as social media and television entertainment. With the development of this project, a lazy person will be able to control their home appliances using their voice. This problem is significant because it enhances the user's comfort, one of the main factors people consider when buying houses. Hence, the first problem is human comfort. The second problem that needs to be addressed is safety and accessibility. In 2022, more houses were built and bought, and one crucial factor when buying a house is