

**UNIVERSITI TEKNOLOGI MARA**

**QI-ENABLED WIRELESS POWER BANK**

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## **ABSTRACT**

The wireless power bank in this final year project has an infrared (IR) sensor integrated in to identify overheating problems during the charging process. The necessity for effective and secure charging techniques has been highlighted by the rise in demand for wireless charging solutions in recent years. In order to ensure that devices with Qi-enabled compatibility may utilize this project successfully, the power bank combines Qi standard wireless charging. The power bank contains an integrated infrared sensor to overcome the problem of overheating during charging. This sensor is installed and linked to track the environment's and the charging components' temperatures in real time. The sensor automatically senses a temperature increase and initiates the automatic shutdown process, hence reducing the possibility of possible harm. Additionally, the power bank is designed to be as efficient as possible. Delivering reliable and fast wireless charging for devices that are Qi compatible. The implementation of Qi technology in a wide array of devices such as smartphones, tablets, smartwatches, and other Qi-enabled gadgets making it a versatile and user-friendly solution for on-the-go charging. This project adapts the growing trend of wireless charging by integrating it with a portable charger. With the built in safety feature, the power bank serves as a practical and innovative solution for users seeking a reliable, efficient, and secure method of powering their devices.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Research Background**

The increase in wireless charging technology, catalysed by the widely adopted Qi standard, has reshaped the landscape of how electronic devices receive power. However, with this increase in usage also came additional challenges such as overheating during charging process and portable power banks. Traditional power banks lack built-in wireless charging. Additionally, traditional power banks also lack safety features such as real-time temperature monitoring. Charging for long periods of time present the risk of overheating no matter the device or the charger. This project aims to tackle the issue by integrating an Infrared (IR) sensor into a Wireless Power Bank. This innovative addition ensures maximum safety due to the continuous temperature surveillance triggering an automatic shutdown in response to temperature spikes. Consequently, this not only enhances user safety during charging but also safeguards the connected devices from potential damage.

In the ever-growing market of portable charging solutions, user safety remains as the utmost importance. This project aligns with the mission of advancing wireless charging technologies by introducing a Qi-enabled wireless power bank fortified with intelligent overheating detection capabilities. The integration of an IR sensor not only increases the convenience of wireless charging but also addresses safety concerns. This project shows a commitment to providing a secure and reliable charging experience, thus ensuring the functionality and durability of electronic devices. By meeting the demand for efficient portable charging solutions, this project contributes significantly