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PROGRAM
PROCEEDINGS
ABSTRACTS BOOK

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KEYLESS BIKE STARTER

Muhammad Najib Bin Mohd Zailani[1], Basyir Bin Mohd Sharil[1], Syed Abdul Rahman Bin Wan Saiful[1], Syafiq Bin Kahardy[1], Muhammad Amirul Safiq Bin A Nor Azmi[1] and Santhanamery Thominathan [2*]

[1]Faculty of Electrical Engineering, Universiti Teknologi MARA, Pulau Pinang, MALAYSIA

[*]E-mail: santha190@uitm.edu.my

[2]Department of Business Management, Universiti Teknologi MARA, Pulau Pinang, MALAYSIA

ABSTRACT

Motorcycles are considered as one of the most popular mode of transportation in Malaysia. It is used by people of all ages and gender. However, there are some common problems faced by majority of the motorcyclist when using key based system. One of the problems faced is misplacing the keys or loss of the keys. Besides, the kick starter that exist in current motorcycles is not convenient to certain users particularly women and elderly people where it needs a high energy to start the motorcycles. In order to solve the problem a new product called Keyless Bike Starter (KBS) is designed and developed using the Internet of Things (IoT) and Radio Frequency Identification (RFID) technology. The KBS will replace the old method of starting the motorcycles with RFID scanner and smartphone. These technologies can help to overcome the above mention problems whereby the motorcycles will automatically start when the registered access card is being scanned through the scanner. The motorcycles can also be started by using an application on user smartphones whereby the button on the application need to be triggered to start up the motorcycle. Without the registered access card and the correct smartphone, the motorcycles cannot be started.

Keywords: keyless, kick starter, internet of things, radio frequency identification technology, access card

1. INTRODUCTION

Motorbikes has been marked as the second most popular mode of transportation in Malaysia as 83% of the households in Malaysia owns motorbikes according to statistics by the Pew Research Center. The motorcycle market in Malaysia is expected to maintain its robust growth owing to increasing government efforts to encourage more people to buy motorbikes and the increasing penetration of motorbikes in the country compared to four-wheelers. The lower cost of owning a motorbike has been significantly the most important reason for Malaysians opt to buy motorbikes (Jennifer, 2019).   As a result, in the rise of the usage of motorbikes, one of the common problems faced by majority of the owners are the frequent lost of the metal keys and over these years, losing keys and losing control over keys has been a common problem we have all faced (Channon, 2018). So as a solution, our team is introducing Keyless Bike Starter (KBS) which uses the technology of Internet of Things (IOT) and Radio Frequency Identification (RFID). The purpose of this innovation is mainly to overcome the problem of losing the motorcycles keys and to reduce the hectic of searching for the keys high and low by the owners which may lead to wasting of time and also losing business opportunities due to late arrival. Moreover, this innovation also may ease the problem of kick starting the motorbikes among the elderly people and women, whereby there will not be any necessities for them to kick start their motorbikes. Although there is motorbikes nowadays with push starts buttons but the use of the keys are still necessary. Thus, the use of Internet of Things (IoT) and RFID technology, can overcome the problem by permitting the users to start up their motorcycle just by using their smartphone or by tapping an access card at the card scanner on the motorbikes. A questionnaire-based survey was conducted among our target market which includes male (67.3%) and females (32.7%) motorbike users in

Seberang Perai, Pulau Pinang area to test on this new innovation and the result of the survey indicates that 94.5% of the respondents agree that this keyless bike starter can overcome their problem of missing keys and also the difficulty in kick starting the motorbikes. Hence, we can conclude that there will be demand for this innovation when it is introduced in the market and it can lead to a profitable growth.
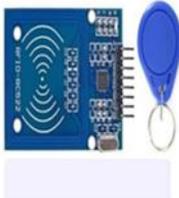
2. MATERIALS AND METHODS

2.1. Development of the product

Basically, the development of KBS is completed where our product able to function according to its purpose. KBS is able to start the motorcycle when the registered card being scanned/ touched or the switch on the smartphone is triggered. The development of KBS is divided into four part which is coding, testing, troubleshooting and installation part. As for coding part, KBS operates based on decision made by the NodeMCU. In order to make the KBS operate efficiently, the NodeMCU need to be code based on specific coding. A boost converter will also be installed to give supply to the NodeMCU. The boost converter will reduce the power from the motorcycle battery which is 12 volts to 5 volt. This is because, the NodeMCU will suffer damage if the power from the motorcycle battery is directly connected to the NodeMCU. In order to prevent this, a boost converter is needed in KBS system. Following, the product will be tested by connecting it to the wiring of the motorcycle. The purpose of this is to ensure that the KBS will operate according to its true functions. Succeeding, the KBS will go through troubleshooting process to identify any problems that faced during the testing part. Subsequently, the installation process will be carried out after the troubleshooting, whereby the KBS will be connected and installed into the motorcycle system. It is important to have knowledge on the wiring of the motorcycle in completing this process.

2.2. Technical Specification

Table 1. Technical Items
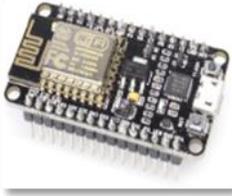
	NodeMCU Microcontroller		Boost Converter
	Relay Module		Electrical Wire
	LED Light		RFID Card Scanner and Access Card

3. **CONCLUSION**

The innovation of Keyless Bike Starter is a great benefit to the market. It can help a lot of motorbike owners from facing unnecessary problems in their daily lives. This is because the KBS provides more up-to-date features and improves the motorbike users' experience. Therefore, this will enhance the well-being of the owners.

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Universiti Teknologi MARA
Cawangan Perak
Kampus Seri Iskandar
32610 Bandar Baru Seri Iskandar,
Perak Darul Ridzuan, MALAYSIA
Tel: (+605) 374 2093/2453 Faks: (+605) 374 2299

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Kelulusan daripada pihak YBhg. Profesor dalam perkara ini amat dihargai.

Sekian, terima kasih.

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