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"THEFTPROOF"

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ABSTRACT

Nowadays, theft incident often occurs in Malaysia. Thieves are now using many methods to steal things including snatching, scams and even pickpocket. The items most often targeted by thieves were purses, smartphones and car keys because they are easy to carry and easy to hide. Because of that, 'Theftproof' was innovated to prevent these incidents from happening. 'Theftproof' have a very convenience shape and size where the size is tiny, and it comes with various shape. Its shape can give confusion for everyone who sees it because it looks like ornament that fit well with the items it attached. It has two parts which one of them will be attached on the precious belongings of the users; one more part will be attached on the users. If they are being apart for more than five meters for instance, the 'Theftproof' will make an alarming sound to show that the item is missing or be taken away. Thus, the users can notify it and can take action faster so that their precious item will not be stolen. The people around the stolen item can also take action by stopping the thief from going too far. We believe that our project, 'Theftproof' will get a high demand in national and international market because of its characteristic that is user-friendly and multi-purpose. 'Theftproof' can be applied on so many items including the user's children. It is one of the needs in our society because everyone loves their belongings and do not want to lose them. Thus, 'Theftproof' can minimize the society's worries by notify the users and give an early warning. Furthermore, this project can enhance the creativity skill and developed the innovation of technology to solve the problem in STEM study as encouraging from Malaysia Education Ministry.

Keywords: Theftproof; small size; pickpocket; various shape; alarming sound

1. INTRODUCTION

Nowadays, theft incident often occurs in Malaysia especially for those living in city. Thieves are more active these days in engaging their illegal activities without fear of being arrested for stealing things. Moreover, thieves are now using many methods to steal things including snatching, scams and even pickpocket. The items most often targeted by thieves were purses, smartphones, car keys and also handbags that women used to carry all of their valuable stuffs. These items are often their main target because of their small nature, easy to carry and easy to hide. Whereas the targeted places have always been the place filled with people such as shopping malls, mosque and even RNRs. This would not only disrupt

the economy of the victims but could also give a side effect such as traumatized with the event that happened.

Because of that, 'Theftproof' was innovated to give a solution for the problems that arise. One of the objectives of this project is to prevent the special belongings of the users being stolen. As stated above, the thieves have been more creative in stealing. They try to use many ways so that their attempt to steal without people notice succeed. Most cases of robbery and snatch theft are carried out by certain individuals who are constantly eyeing the opportunity to commit a crime when they have the space to do so [3]. But, with the innovation of 'Theftproof' their silent steal will not succeed as the items they stole will make an alarming sound. This sound eventually will tell others that something is not right happening at the moment. The people around the stolen item can approach them and try to stop them from going too far.

Other than that, this innovation can also prevent someone from being traumatized with their losing items. In today's world, everything is on the tip of our fingers. Many special items are in small size such as handphone, car keys and purses. All of these small items keep many important matters in there. For example, purses contain money, credit cards, debit cards and not to forget, identity cards in there. The losing of a purse means the losing of all the important matters in there too. People may get traumatized when their identity had been stolen or framed by the thieves. Small items mean big chance for the thieves to steal it without the users notice. So, 'Theftproof' can prevent these terrifying incidents from happening.

The innovation of 'Theftproof' technology came with many kinds of motivation. It can be observed by looking forward to the theft cases that are unstoppably happening nowadays. It gives various sides effects to the victims including emotional disrupt. They may experience feelings of helplessness. A 2016 Identity Theft Resource Center survey of identity theft victims sheds light on the prevalence of this emotional suffering caused by identity theft. 74 percent of respondents reported feeling stressed, 69 percent reported feelings of fear related to personal financial safety, 60 percent reported anxiety, 42 percent reported fearing for the financial security of family members and 8 percent reported feeling suicidal [1]. Not only that, the victims may Limit their social life or work life, or changing their lifestyle, by not going to places like where the crime occurred or being afraid to go out altogether, because of unease or fears of revictimization [2]. Therefore, our concern towards the society's safety also motivated us to invent 'Theftproof'.

2.   INNOVATION DEVELOPMENT

Thieves are now using many methods to steal things so, as a way to avoid these occurrences, we decided to make a pair of devices called 'Theftproof'. This pair of devices can prevent any loss of personal belongings or robbery by emitting a loud sound to alert and notice the person that their belongings have been stolen or lost. This will reduce the rate of robbery and thief will no longer has the chance to steal people's belongings. 'Theftproof' is said to be different from other anti-lost device or device tracker because of its small size and unique shapes which is very handy and attractive. This will cause people to mistakenly see the devices as phone accessories and does not care about the purpose of the devices. Moreover, 'Theftproof' does not need any wi-fi or data connection to avoid any problems regarding

internet connections. It has two devices connected through bluetooth by an application that is installed in the smartphone. 'Theftproof' uses a small lithium battery which can be replaced each year so the device can last long until it is broken. There is also an application that helps 'Theftproof' works more easily and effectively. The application is not that complex compared to some other previous applications as there are only few options and controls available. For example, user's information, 'Home' option, devices volume and security passcode.

The way 'Theftproof' works is, one of the 'Theftproof' device pair will be applied or attached on smartphones, wallets, laptops or any valuable belongings, while another one will be attached closest to the user such as watch, clothes, necklaces or even bracelets. This is because 'Theftproof' uses the concept of transmitting and receive which will cause the device to emit sound if both of them are far away from each other and out of some specific range. For instance, if the devices are being apart for more than 3m, 'Theftproof' will make an alarming sound to show that the item is missing or taken away from the user. Other than that, 'Theftproof' also will have a 'Home' option which able the user to set a desirable radius in their house to keep the devices stay silent. This will prevent any annoying repeated sounds when one device is located at the living room while another is located in the room upstairs even though there is no stealing or danger in action.

The application is first installed in the user's smartphone after having the 'Theftproof' device. After that, the user needs to fill in their information such as name, email address, some security questions and country. Then, the user is asked to set the house radius such as single or double storey house, the house area measurement and any house compound or backyard area measurement. Therefore, these will make sure that the house area is included as the devices safe area. Lastly, the user can explore more on the device setting such as increasing the volume to maximum, desirable range between 1 meter until 5 meter or add an extra security passcode on the device to make sure that no one can change the settings and user information.

3.   COMMERCIAL POTENTIAL

Nowadays, theft incident often occurs in Malaysia especially for those living in city. Thieves are more active these days in engaging their illegal activities without fear of being arrested for stealing things. Moreover, thieves are now using many methods to steal things including snatching, scams and even pickpocket. The items most often targeted by thieves were purses, smartphones, car keys and also handbags that women used to carry all of their valuable stuffs. These items are often their main target because of their small nature, easy to carry and easy to hide. Whereas the targeted places have always been the place filled with people such as shopping malls, mosque and even RNRs. This would not only disrupt the economy of the victims but could also give a side effect such as traumatized with the event that happened.

Because of that, 'Theftproof' is innovated to help those people or society to be alert with their precious belongings. As stated above, the item that is the most targeted by the thieves are mostly small items that is easy to carry and easy to hide such as purses, smartphones and even car keys. These small items not

only can be an easy target, but also an easy item to be forgotten. For instance, people always forget to pick up the car key they left on the table after eating at a restaurant. This situation opens the opportunity for the thieves to do their work. By using 'Theftproof', all of the problems can be settled down. The users only have to follow a simple instruction and the device is ready to use.

'Theftproof' come with two devices, one will be attached on the items that is always be with the users such as clothes and one more will be attached on the precious belongings of the users. Once the devices are on place, one application can be installed to control the functionality of this device. Both of the devices will not make any sound if they are still in the range area (safe area). For example, in the radius of 5 meter from each other, this device will not make any alarming sound because they are still in a safe area. If the device is being apart for more than 5 meters, it will make an alarming sound to inform the user that their belongings had been stolen. As a result, the user will be alert with the sound and make a move to find the missing items. The people around the thieves can also take action by stopping them or asking them why these items make sound unstoppably. The thieves will feel uneasy and distracted with that kind of situation. By this, the user can find their items faster than they have to wait for the authorities to arrest the thieves.
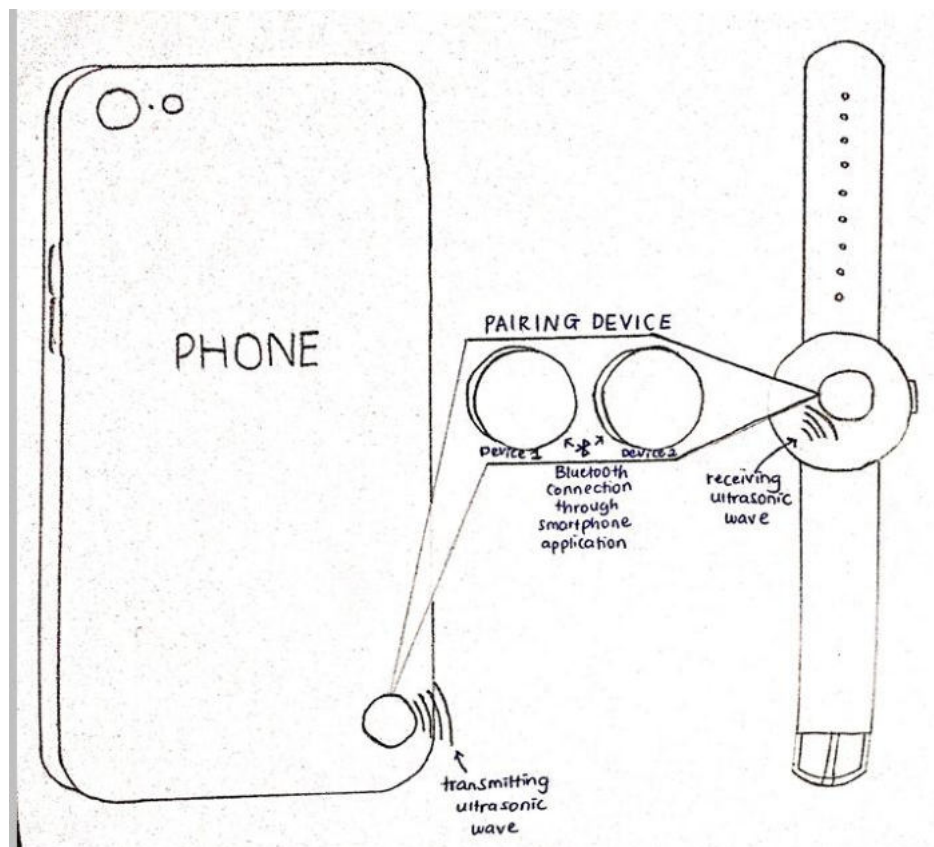

Figure 1: 'Theftproof' sketching

In addition, the user can set this device in home mode if the user is at home. By doing this, the devices will not make any sound no matter how far the user goes. We believe that 'Theftproof' will get a high demand once it enters the national market or global market. It has an affordable price as the target market cover a wide range of people in our society. 'Theftproof' have a very convenience shape and size where the size is so small, and it comes with various and attractive shape. When we talk about shape, its shape can give confusion for everyone who see it because it looks like ornament that fit well with the items it attached. It is also user-friendly where the users do not need any force to carry it along with them everywhere, they go. Other than that, it is also multifunction because instead of applying it on items, the users also can apply it on their children. As we can see in nowadays' world, parents sometimes get unnoticeable with the disappearance of their child especially in crowded place due to their business of work or even when they are shopping. But, with the help of 'Theftproof', they will be noticed by the alarming sound that their child is not around them.

On the other hand, every single person in this world loves on their belongings and do not want to lose them. As it will be needed by the society, the selling of 'Theftproof' in the market expected to increase exponentially. The producing cost of this 'Theftproof' is inexpensive and we believe that the community will have no problem with the selling price. The price is reasonable and affordable. If the selling is recorded graphically, we can increase our country's economic and it is not impossible to put this product in the global market since it is a very productive product.

Table 1: Estimation of costing Theftproof Device

Items	Price (RM)
Bluetooth	10.00
Lithium battery	5.00
Cover	10.00
Total	25.00

4.   CONCLUSION

In conclusion, 'Theftproof' can help in preventing theft incident from increasing. It is due to its function that can notify the users when their belonging being apart from them in radius of 3m by making an alarming sound. This function will help the users to make a fast action as they know that their belonging was taken by others. Furthermore, 'Theftproof' will always on and being function as it do not have the power button. This function is an advantage for the forgetful users as the they did not have to be concerned to always make sure the 'Theftproof' to be on. For future recommendation and improvement for our project, our team has come up with several ideas to improve this 'Theftproof'. The first idea is to add the GPS tracker together with this 'Theftproof'. This will help the users to identify the theft's location. By knowing the theft's location, it will help the users to make more fast action as they can just go to the theft's location for getting back their belonging. Other than that, they can also just make a report to the police or other authorities about the location of the theft. This can help the police and authorities in catching the theft faster. The second idea is we want to add some adding value to the

'Theftproof' by adding setting for volume of sound. The users can set the volume of sound for every range of radius of their belonging being far from them. As example, the users can set the range of sound to be louder if the belonging is being apart for 3 meters than when the belonging being apart at 2 meters. By having this function, the users can differentiate either the theft are far from them or not and help them to know exact distance between the theft and them. The third idea is to come up the 'Theftproof' with solar panel on it. Amorphous silicon will be added on the surface of the 'Theftproof' and being used as photovoltaic. By adding this solar panel, it will help lower the cost for the users as they do not need to purchase battery for the 'Theftproof' constantly. With the usage of the solar panel, the 'Theftproof' will also be considered as environmental-friendly. By this idea of improvisation planning, it can increase the 'Theftproof' marketing value. The variety of uses and idea can attract the new buyers. It can also hit the international market and compete with other innovation.

ACKNOWLEDGEMENT

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