



INTERNATIONAL EXHIBITION & SYMPOSIUM ON PRODUCTIVITY, INNOVATION, KNOWLEDGE & EDUCATION

**“Optimizing Innovation in Knowledge, Education and Design”**

## ***EXTENDED ABSTRACT***



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*“Optimizing Innovation in Knowledge, Education and Design”*

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17.	PilgrimGuard Band: Pilgrimage Emergency Bracelet <i>Mohd Zulfahmi Bin Ashan, Debra Utih Anak Francis, Floria Ann Anak Dominic, Stephanie Pilem &amp; Boyd Sun Fatt</i>	468-472
18.	Ecobloom <i>Annatasha Faythe Henry, Norfazierra Wara Binti Awang Latiff, Qurratu'Aini Binti Mohammad Ibrahim, Suhaiza Shazleen Binti Balamis &amp; Mohd Arsy Ardy Mohd Hardy</i>	473-477
19.	Smart Bip Bottle <i>Ryliani Dahlya Binti Naw, Waldina Fadila Binti Cabel, Nur'Ain Binti Muin, Nuraisyah Syahirah Binti Rody &amp; Sairah Saen</i>	478-483
20.	AdaptCare <i>Nurul Zakiah binti Ramli, Enmmanuell Anak Ayang, Nurul Nazihah binti Asmad &amp; Ahmad Fareez bin Yahya</i>	484-488
21.	Float-Flex <i>Ummi Syakirah Rosmini, Aini Nabihah Ahmadi, Nur Wafiqah Waki', Muhammad Farhan Azaham, Azmeer Hafizi Halimi, Nur Farahah Mohd Pauzi &amp; Siti Azrina Adanan</i>	489-494
22.	SHOPFinder Application <i>Muhamad Atiq Fahim bin Buareng, Al Zikri bin Alkadzie, Nurul Shafika Norkhatijah binti Abdul Rasit, Vassylysa Eirlys Paulus &amp; Nurafiqah Mohamad Musa</i>	495-500
23.	Maya (Smart Mirror) <i>Dr. Vani A/P Tanggamani, Siti Fatimah Noor Binti Minhad, Nur Syazwani Binti Suhaimi, Dania Arisya Binti Isderis, Nor Hafizatul Madihah Binti Mohd Jaffar, Nurhuda Hanisah Binti Haizam &amp; Puteri Fadlin Sakina Binti Megat Mahayudin</i>	501-505
24.	MudahTravel Mobile App <i>Carolena Mariana James, Nur Syuhadah binti Khir Juhari, Sharifah Aida Asyiqin binti Syed Anuar &amp; Nurafiqah Mohamad Musa</i>	506-510
25.	E-Book "A Night in Gong Mountain" – A Tale on Environment and Space <i>Muhammad Azmeer Mohd Zahari, Juritah Misman &amp; Nik Narimah Nik Abdullah</i>	511-514
26.	TLM On-the-Go: Online-Based Instructional Materials <i>Ellyza Ezlyn Blaise, Fazlinda Hamzah &amp; Mohd Azlan Shah Sharifudin</i>	515-517
27.	PoemS: A Poem Sharing Application <i>Clarence Anak Laurence, Mohd Azlan Shah Sharifudin &amp; Fazlinda Hamzah</i>	518-521
28.	Hair Extractor Comb <i>Noraini Binti Sa'ait, Agnes Anak Kanyan, Nur Liyana Binti Abdullah. Nur Balqis Amirah Binti Hamzah, Nur Ellyssa Azreen Binti Abdul Rahman, Siti Nasuha Nabilah Binti Mohamad Mokhaldin &amp; Yusratul Wanie Binti Yusmandi</i>	522-526

Assalamualaikum warahmatullahi wabarakatuh,



First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services. By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality. I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

*Professor Dr. Roshima Haji Said*  
RECTOR  
UiTM KEDAH BRANCH



## WELCOME MESSAGE (i-SPIKE 2023 CHAIR)



We are looking forward to welcoming you to the 3<sup>rd</sup> International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPIKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPIKE 2023; your dedication and hard work are greatly appreciated.

*Dr. Junaida Ismail*

Chair

3<sup>rd</sup> International Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023)





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### ABSTRACT

Humans frequently struggle with hair loss, which makes it easy for their hair to become tangled in combs. As a result, it will be quite unsanitary for them since these hairs will begin to collect on the comb and spread bacteria there. A hair extractor comb is the thing our team has decided to make to address this issue. This comb's purpose is to make it simple to remove hair that has become trapped on it. Our comb is unique from other combs since it has a hair extractor because the combs, we typically use every day do not have the capacity to remove our hair if it becomes trapped on the comb. As a result, it became a reason for people to use our product to make life more convenient for them. Due to the huge user bases that Shopee and TikTok shop have, they will serve as our primary distribution channels for our items. Additionally, we'll use social media to advertise our product's specifics to gain more potential customers in the future. We hope that through the invention of this product, it can help those who have hair fall problems to live their life easily.

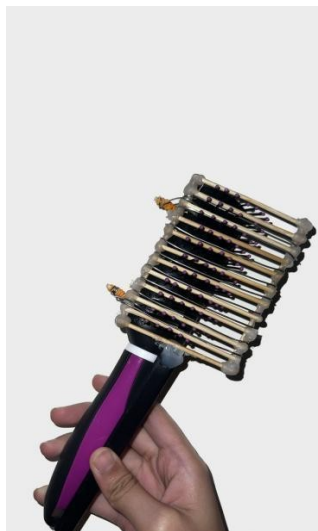
**Keywords:** hair, comb, extractor



## INTRODUCTION

The product that our group has chosen to create is a hair extractor comb. Humans usually face a problem of hairfall in their daily life and this causes their hair to get stuck easily on comb. Therefore, it will be very unhygienic for them as these hairs will start to clump on the comb and produce bacteria on it. Due to the existence of this problem, we have decided to create a tool to solve this problem which is by creating a hair extractor comb. This comb function is to extract the hair that is stuck on the comb easily. By having tools which are the hair extractor to remove the hair clump on the comb, it will be more convenient for people because they would not have to struggle using their fingers to remove the hair.

Due to the small budgets that we have, we only manage to build the product's prototypes first, where the materials that we have used are comb, wire, stick and glue. However, once we manage to gain financial support from investors, we will build the real product where the materials that we might need are wood to replace the wire and stick, stainless steel door hinges and a wooden comb. We are planning to use wood as most of our material so that it can last longer. The cost to produce one product might be around RM15 and this product can be sold with the price of RM20.



**Figure 1.** Image of the product

## PROBLEM STATEMENT

One of the problem statements that led us to create this product is the hair fall problem. As we know, every human will face hair fall every day. According to the American Academy of Dermatologists, it is normal for a human being to lose around 50 to 100 hair strands in one day. Therefore, every time people brush their hair, it is noticeable for them that their hair will fall out together with the comb that they use. Humans, especially women, will face this problem in their daily life. Hence, it is a need for them to have our product to extract their hair out.

Second problem is the problem of hair getting stuck in comb. Due to the hair fall problem that people face every day, it is a normal occurrence where whenever people brush their hair, it will cause their hair to be stuck in the comb that they use. Every time they brush their hair, a lot more hair will clump in the comb. Therefore, they need to frequently remove the hair

that is stuck in the comb with their hand. It is usually hard to remove the hair because of the small gap between the inside of the comb. This will need people to use small items to take their hair out.

Third problem is unhygienic. Due to the clump of hair that is stuck in the comb, it can make your brush dirty and can become a place where bacteria, dust and even yeast can be produced on the hairbrush. Due to this the scalp can become itchy and make your scalp become dandruff-prone. Moreover, with a normal hair brush it can make your house and room look dirty and messy. Because a normal hairbrush doesn't have any extractor to catch hair, the collected hair on the floor can make dust and dirt stick on it which can make your home and room look shabby. These three problems statements are the reason why we find the need to create this product to help people that face this problem every day.

## PRODUCT NOVELTY

One of this product's novelty is the availability of hair extractor. Due to the hairfall that people always face, it will be easier for their hair to fall when brushing their hair. Therefore, their hair tends to get stuck onto the comb and the hair will start to clump in the comb. If this happens, it will cause more hair to fall out because the more clump in the comb, it will cause them to pull more of a person's hair. This is the reason why we create a hair extractor in our comb. By having this extractor, it will be easier for people to remove their hair that is stuck in the comb. Once they comb their hair, they can immediately remove the hair that is stuck on the comb easily by pulling it out using the tool we create. With this, there will definitely be no hair that would start to clump the comb.

Aside from that, this product's novelty is it is an environmentally friendly product. It is one of our novelties because our product will use wood as most of our materials. This is to make sure that at the end of the product life cycle, it can be recycled for another use.

The next novelty of our product is that it has a variety of sizes. This anti-hairfall comb will come with 2 sizes, normal and mini size. The mini size can be easily brought to anywhere and it is suitable to bring when on vacation as it is easy to carry because of its size.

Next novelty is that the product is more hygienic. People can keep good hygiene in their daily life because it will not create a mess when combing hair. With a normal hairbrush, hair can easily fall to the floor, which can create a messy and dirty floor. Not only that, hairs that are collected on the floor can make dust and dirt stick on it. This makes the home or room look unhygienic and filthy.

## PRODUCT FUNCTIONALITY

The product's main function is to extract the hair that gets stuck on the comb when people brush their hair. The hair clump that has been lodged in the comb can make the comb unclean and serve as a breeding ground for germs, dust, and even yeast. Because of this, people's scalp may become irritated and prone to dandruff. Therefore with the availability of hair extractor in the comb, after people brushing their hair, they can immediately remove the hair that was inside of the comb easily without having to find small things to pull the hair out.

The importance of this product is its efficiency. Compared to males, women shed their hair more frequently. This comb is a particularly reliable instrument for estimating the rate of hair loss. Since the comb is anti-hair, the hair won't stick to it when the user comb their hair from the front of the scalp to the back of the top of their head. The comb was very useful as it can easily be removed to throw in the bin.

Next, the product helps for a convenient life. The product is very convenient for the user as the user can comb their hair without having their hair fall on the ground which will cause them to clean the floor frequently. Not only that but this hair comb can guarantee that the hair will not stick into the hair comb and people who have problems with tangled hair can try this product. There also a comfortable is anti-slip to hold, it won't get tired after holding it for a long time

The comb is also easy to operate. The hair comb is simple to use since when it is open, all of the hair that has become lodged inside it will fall out. The comb will easily remove the hair separately from the hair comb. It reduces friction between your comb and your strands, lowering the chance of hair breakage, hair thinning and damage.

## PRODUCT COMMERCIALIZATION

In order to produce this product, it will cost us around RM15 for one comb as the product materials only consist of wood and screws. Therefore, the selling price for this comb will be around RM20. We have decided to put the price to be affordable so that everyone who actually needs the product can make the purchase which will help them to have a convenient life. The profit that we might get from selling one product is around RM5.

This product's target market is female customers, especially those who face severe hair fall in their daily life. Although our product can be used by everyone no matter their gender or age, our potential customer is most likely from women. This is because women with long hair tend to shed their hair more often to be compared with male with shorter hair. This is why our focus is to attract female customers as they will be the one who needs our product the most.

In the future, we plan to market our product through online shopping which is shopee and tiktok shop. Both of these platforms are one of the most used applications by people to make their purchase online. Especially to those who just start to sell their product can use this platform as it is one of the online shops that can support small business. In addition, using both of these platforms require a small amount of cost compared to selling products physically as it requires the cost such as rental cost. Besides, by selling products online, we can reach a lot more customers not only those who live in one city but to the whole country. Therefore, customers who need our product can get our products easily through shopee and tiktok shop and make a purchase right away.

In order to make our product known to everyone, we will promote the product through social media such as facebook, instagram, and tiktok. Almost everyone around the world has these social media accounts. By promoting our product in these social media, not only those in the country but it will be possible for us to attract customers from foreign countries. Hence, if we



promote our product by sharing its functions and benefits towards users, it will attract their attention to try our product and go to our online shop to make a purchase. We could gain a high number of profits if we manage to grab more customers to try our product.

## CONCLUSION

In conclusion, the creation of this hair extractor product is to solve problems that humans always face in their daily life. This product brings a positive impact towards the environment as it helps to keep our environment healthy since it uses material that can be reused and recycled which is wood. Meanwhile, towards society, women will have more convenience in their daily life because they don't need to pull out the hair from the comb every time they brush their hair. The effect of this product towards the economy is, it will bring a generous profit in the country. If the products are being commercialized in the other country, it will increase export activity and increase money inflow in the country. In the future, it is hoped that our product can help those who actually need them, especially those who face serious hair fall. By using this product, they can keep a good hygiene as our product protects from hair clumps. We are hoping that we can improve our product so that it can work better in the future.

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