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Nafas Face Mask

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Abstract— Because of the COVID-19 outbreak, everyone is required to wear a mask whenever they enter a public space; however, most people have difficulty breathing while wearing a mask, and some people may smell something foul behind the mask. The "Nafas face mask" is also a novel fabric mask with a fragrance filter. The word 'nafas' means 'breath' in Malay. The product's primary goal is to promote the use of face masks because some people, particularly children, refuse to wear them due to their unpleasant odour. Wearing a mask can be extremely uncomfortable for adults and children with sensory issues. They may be sensitive to the sensation, odour, or proximity of a mask. This 'Nafas face mask' is made of batik-patterned fabric and contains a fragrance-producing filter. This face mask is simple to apply and suitable for most people, especially those who have had breath. Face masks are used as part of personal protective equipment and as a public health intervention to aid in the prevention of the COVID-19 virus's spread. This initiative helps to achieve the UN Sustainable Development Goals of Good Health and Well-Being (SDG3), Responsible Consumption and Production (SDG12), and Life on Land (SDG15) (SDG15). This product benefits society as a whole by improving people's quality of life and encouraging them to recycle fabric products to achieve a sustainable environment. It also has commercialization potential.

Keywords—*Innovation, Nafas face mask, Quality of Life, COVID-19, Sustainable*

1. INTRODUCTION

Since late 2019, the Coronavirus disease, commonly known as COVID-19, has impacted most countries around the world, leading most industries to collapse as a result of the infectious disease. The new virus is causing havoc around the world because it spreads primarily through close contact with people. Fever, cold, cough, bone pain, and respiratory problems are common COVID-19 symptoms. People with diabetes, high blood pressure, and asthma are considered potential high-risk individuals because their immune systems are weaker, causing them to recover more slowly than others. As a result, early precautions such as thorough cleanliness, frequent handwashing with sanitisers or soap, avoiding face-to-face interaction, social distancing, and wearing a face mask are critical. Although wearing a face mask has many benefits, it has also been connected to a number of negative side effects, including having bad breath. With the availability of Nafas face masks, it would enable individuals to wear masks without inhaling their own bad breath, which could distract individuals from their ability to concentrate and, to a certain extent, also result in headaches. The PM 2.5 filters, which are incorporated and placed in the face masks' compartments, may release pleasant aromas such as floral, fruit, citrus, botanical, and gourmet scent. This shows that the use of Nafas fragrance face masks will aid in enhancing productivity and facilitating easier breathing for users.

II . MATERIALS

The fabric face mask is mostly made of cotton and can be worn for a long period. It's available in two sizes, one for adults and the other for kids. It is printed with a batik pattern that is representative of Malaysian culture. The particulate matter 2.5 is a five-layer filter system made up of melt-blown nonwoven polypropylene, spun-bond polyester fabric, and a central layer of activated carbon. The second layer contains fragrant herbal extracts such as tea tree, mint, lavender, lemon, and lemongrass. According to The International Fragrance Association (IFRA) (2020), 0.089 percent of the herbal extract will be placed in the second layer of the filter because 0.089 percent is the allowable fragrance measurement level for a product applied to the face or body using the fingertips. The filter is also available in two sizes: adult and child. Those materials and designs used for producing the *Nafas* face mask indicate the product's unique features (see Figures 1, 2, 3 and 4).



Figure 1: Fabric face mask



Figure 2: Particulate matter 2.5 (PM2.5)

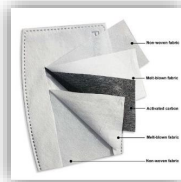


Figure 3: Particulate matter 2.5 (PM2.5) structure

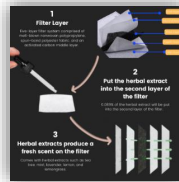


Figure 4: Process of herbal extract into the filter's second layer

III. METHODS

Sewing is the method used to make this product. Children's (14.5 cm x 12.5 cm) and adult (18.5 cm x 17 cm) sized face masks and filters will be measured and sewn. To prevent germs from spreading to the filter, the person in charge of the filter manufacturing process is compulsory to wear gloves. The filter would be inserted through a hole at the top of the face mask. A feasibility survey was also conducted to gather feedback from the potential market segment. A convenience sampling approach was used to distribute 200 questionnaires to respondents via online Google Form. Demographic, Product Awareness, Product Usability, and Product Features are among the variables measured in the survey, which employs a nominal and 6-Likert scale (1= Totally Disagree to 6= Totally Agree). The collected data were analysed using descriptive statistics.

IV. RESULTS AND FINDINGS

A. Demographic Profile

Gender, race, marital status, age range, level of education, and employment status of respondents were all measured. Out of 200 questionnaires sent to the potential target market, the survey received 142 (71%) usable responses, with 58 (29%) failing to respond to the Google Form. The findings revealed that 28.9% of males and 71.1% of females responded, with 57% aged 18 to 25 years followed by 39.4% aged 30 and above, 2.8% aged 25 to 30, and 0.7% aged under 18.

B. Respondent Awareness

Since the government abolished the restriction on wearing face masks outside on May 1, 2022, a significant number of people (15.5%) have expressed disagreement, while 84.5% have remained supportive. Moving on, 69.7% of respondents said they had bad breath when wearing a face mask, and 73.2% said it was difficult to concentrate on everyday duties because of bad breath. Furthermore, 64.8% think that wearing a face mask creates bad breath, which makes them feel uncomfortable, and 62% agree that bad breath might cause headaches.

C. The Usability of Nafas Face Mask

When asked if the Nafas Face Mask was useful, 63.9% of the respondents agree that a face mask with a fragrance filter is ideal for daily use. Furthermore, 71.7% of respondents agree that wearing a fragrance filter face mask prevents bad breath and 69.5% state the Nafas Face Mask boosts people's confidence to complete daily tasks.

D. The features of Nafas Face Mask

In terms of the Nafas Face Mask's safety and functionality, 43.7% of respondents agreed that it should have five layers of filtering material to prevent virus transmission and micro-holes to speed up scent production. Since the face mask had a fragrance on the filter to help prevent bad breath, 32.4% of respondents said they favoured fruity scents like passion fruit, strawberry, and peach. Citrus aromas such as lemon, orange, and lemongrass are the second most widely agreed upon fragrance (29.6%). Moreover, 28.2% of respondents liked botanical scents like eucalyptus, cedarwood, and tea tree, while 26.8% favoured gourmand scents like almond, bubble gum, and peppermint. Floral fragrances are the least popular, accounting for only 19% of the total. Finally, 75.9% of respondents agree that a face mask with a fragrance filter is an effective everyday product.

V. CONCLUSION

Eco-friendly products benefit both humans and the environment because they are more durable, recyclable, less hazardous, require fewer resources, are safer for the environment, care for wildlife, and improve human quality of life. This filter from the "Nafas Face Mask" allows the community to continue with their daily activities while wearing the mask because it keeps the odour of their mouths at bay and prevents COVID-19 infection. It may also save money because the face masks are reusable, and it is in line with the United Nations Sustainable Development Goals. People are becoming more conscious of and interested in environmentally friendly products, and there are potential buyers for the "Nafas Face Mask" product on the market. To summarise, the "Nafas Face Mask" product is a fantastic eco-friendly product that benefits customers or tourists as well as the environment's sustainability.

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