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THE ORGANIZER: TOWARDS PROFESSIONALISM AND SAFETY IN UNDERGRADUATES JEWELLERY FABRICATION PROCESS

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ABSTRACT

Hand tools arrangement while doing any fabrication process is a very important thing that is always neglected by many people not just by professional fabricators but also by undergraduates. Any dangerous tools like sharp, flammable and corrosive tools must be arranged in a safe location while doing any fabrication process, especially jewellery fabrication. The objective of this design idea is to initiate a safer working environment for undergraduate students, to make the jewellery making process become more easier with effective arrangement of tools while doing any fabrication process and to introduce jewellery tools organizer as a part of safety features in jewellery making process. This design will be focused on how to arrange jewellery hand tools based on personal experience, observation and references on current issues. Other than the usability elements, the design will also consider the affordable price for undergraduate students and the design must be portable because undergraduate students are not professional practitioners that usually have their own working station. Based on that design, students' temporary working station at their university or any education center will become more organized and safer. Organized and safe working environment will cultivate professional working experiences and will affect their result of designing and fabricating jewellery.

Keywords: organizer, safety, jewellery, fabrication.

1. INTRODUCTION

A failure of some tools or material handling in the working area can cause serious injury or the worst death. In 2015, one jewellery store exploded and killed one of their goldsmiths. That accident is caused by an exploding gas cylinder ^[1]. Safe and convenient working areas must be encouraged and applied from small things until larger scope of work to avoid or reduce the risk of any type of injury ^[2]. Jewellery tools' convenient arrangement while doing any fabrication process is a very important thing that is always neglected by many people not just by professional fabricators but also by undergraduate students. Any dangerous tools like sharp tools must be arranged in a safe and appropriate location while doing any fabrication process especially jewellery fabrication process.

2. OBJECTIVES

The objective of this design idea is to initiate a safer working environment for undergraduate students, to make the jewellery making process become more easier with effective arrangement of tools while doing any fabrication process and to introduce jewellery tools organizer as a part of safety features in jewellery making process.

3. METHODS

The design of jewellery tools organizer is focused on elements that are applicable with undergraduate students which is, portable, flat design element and affordable.

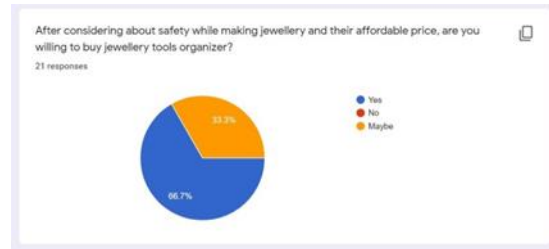


Figure 1. The necessity of jewelry tools organizer

Based on the result of the survey on Figure 1, the researcher had identified the importance necessity to designing the jewellery tools organizer. The researcher has using Solidworks's software to make virtual version of that organizer. The A4 paper size has become a benchmark size for the jewellery tools organizer because A4 paper is commonly bring by undergraduate students and they keep that A4 size paper in their bag or laptop bag. Based on the A4 paper size, the researcher has placed commonly used tools like jewellery piercing frame, needle files, drill bit, setting burr, hand torch and jewellery plier on the A4 paper to measures the suitable and appropriate tools organizer design. By using Solidworks software, the researcher was able to do ideation process easily and can make a change on the spot without any additional cost. The sophisticated virtual design is built by using actual size and the technical design is ready for mass production purposes.

4. FINDINGS

The researcher has produced an ergonomic design of jewellery tools organizer so that the jewellery tools organizer will be suitable to be placed on the jewellery working bench and easier for students to bring it to their jewellery studio. Polyamide 6 (PA6) material has been chosen as a material for mass production because of its characteristics of heat resistant up to 223 centigrade, good impact strength, good abrasion and wear resistance and high potential to mass produced by using injection mold technique [3]. All commonly used jewellery tools can be placed and removed on its exact provided slot successfully.

5. ARGUMENTS

There are many existing jewellery tools organised in the market. Majority of that organizer was built to be placed permanently on the working bench and not portable. Material like wood is commonly used so it will be more difficult to mass produce with an affordable price.

6. CONCLUSIONS AND SUGGESTIONS

Jewellery tools organizer not an assurance for total safety in the working area but a comprehensive effort must be done to encourage professionalism and safety in jewelry fabrication education and industry. Future advance research is highly recommended by implementing artificial intelligence (AI) or smart sensors in the working area to detect or predict any incoming hazardous situation.

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

Sekian, terima kasih.

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