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Parto Vacuum Cleaner

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ABSTRACT

Environmental pollution is a serious problem that threatens the survival of mankind. One of the activities that can reduce environmental pollution is by recycling waste materials. Recycling is the method of regaining, reprocessing, and reusing the waste materials that would be thrown away. The most commonly recycled materials include paper, glass, plastic, and metals. Using various types of waste materials, a simple, small size, battery operated and user-friendly portable vacuum cleaner was designed. This vacuum cleaner is suitable to be used by children to educate them about cleanliness and also by adolescents and adult especially when the cleaning involves the tiny surfaces or holes. The vacuum cleaner, Parto Vacuum Cleaner main components include an axial fan, dust compartment, sucker tube, and 9V DC. Since the construction of the Parto Vacuum Cleaner is simple, children can even do it by themselves (DIY method). Parto Vacuum Cleaner is an effective, simple and low-cost vacuum cleaner suitable to be used when cleaning tiny surfaces or holes has the potential to be patented and commercialized.

Keywords: DIY method; vacuum cleaner; DC battery; waste material

1. INTRODUCTION

Environmental pollution is a serious problem that threatens the survival of mankind. One of the activities that can reduce environmental pollution is by recycling waste materials. Recycling is the method of regaining, reprocessing, and reusing the waste materials that would be thrown away [1]. The most commonly recycled materials include paper, glass, plastic, and metals [1,2]. Using various types of waste materials, a simple, small size, battery operated and user-friendly portable vacuum cleaner was designed.

A vacuum cleaner is a common cleaning tool and has been invented year by year in reducing energy for the cleaning process [3]. Vacuum cleaners have a variety of sizes and models, from large to small model battery-powered, which are usually used in homes as well as in industry [4]. The various types of commercial vacuum models including hand-held vacuum cleaner, stick vacuum cleaner and upright vacuum cleaner [5, 6], and the present vacuum cleaner are quite expensive and have a high maintenance cost [7]. This paper suggests the use of DC battery using waste materials in designing the portable vacuum cleaner and friendly user.

2. INNOVATION DEVELOPMENT

Product Description

Parto Vacuum Cleaner main components include an axial fan, dust compartment, sucker tube, and 9V DC. An Axial Flow Fan is used to generate suction pressure to suck the garbage, dust or dirt [8].

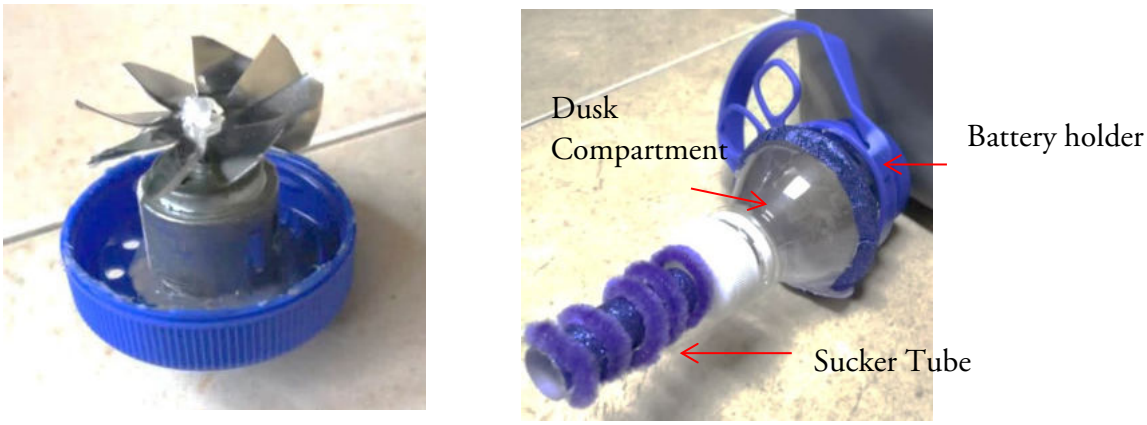

Figure 1: (a) Axial fan **(b)** Parto vacuum cleaner design

The materials including waste materials used to construct the Parto Vacuum Cleaner are as follows:

(a) (b) (c) (d) (e) (f)

Figure 2: (a) 5.5 Liter bottle **(b)** 1.5 Liter bottle **(c)** Biscuit tin **(d)** 9V battery **(e)** Battery socket **(f)** Filter net

Product Preparation

There are some important steps of designing Parto Vacuum Cleaner as shown below.

Figure 3: Preparation of parto vacuum cleaner

Working Principle

When the Parto Vacuum Cleaner is switched ON, the axial fan blades turn at its axis, the suction pressure is produced [8] whereas airflow is created with a high flow rate for sucking the outside dust into the vacuum. The ambient air pushes dust into suction mouth since the pressure inside the vacuum is lower than outside pressure.

3. COMMERCIAL POTENTIAL

This simple technology product is very useful in everyday life such as to clean study table in shorter time, to remove dust from toys for children and also to suck dust on devices like laptop. It is surely can go pretty much anywhere you need it to and still work as you intend for it to. In other word, this product has the potential to be patented and commercialized due to friendly user which suitable for being used at home, office, school and even in car.

4. CONCLUSION

Parto Vacuum Cleaner is an effective, simple and low-cost vacuum cleaner suitable to be used when cleaning tiny surfaces or holes has the potential to be patented and commercialized.

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