

UNIVERSITI TEKNOLOGI MARA

**DESIGN, ANALYSIS, AND
FABRICATION OF SOLAR POWER
BANK USING RECYCLE BATTERY**

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ABSTRACT

Power bank is very helpful and it is commonly used in worldwide to keep smartphone always on. It is also portable to brought it wherever we go. However, it is not very suitable for some activities and situation. This can be proven when we bring the power bank along with us for a camp or climb for a few days or longer, because the battery capacity of the power cannot last long. Thus, to overcome this problem we re-design the power bank by adding a solar panel that can fit and portable enough for us use it. The purpose of the solar panel is to make the battery rechargeable using the sun light instead using a wire and maybe we will make it waterproof so that it can stand tough for an outdoor activities. In the other hand, it also suitable for normal usage such as hang out with friends and many others. Furthermore, the design of this power bank is more friendly user than the normal power bank.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Every final semester, Mechanical Engineering Students are needed to innovate and prepare a product or prototype based on the student title. The title for this project is 'Design, Analysis, and Fabrication of Solar Power Bank using recycle battery'. This project is about to create an innovation to the power bank to solve actual problem and make it more usable than it has. In other word, the prototype must be something new or the innovation of the original product must be the best portability enough than the previous product design.

What is power bank, exactly? The first portable power bank was created in 2001 by a Chinese company called Pisen [1]. It is a portable batteries that use circuitry to control any power in and power out. They can charge up using a USB charger when power is available, and then used to charge battery powered items like mobile phones and a host of other devices that would normally use a USB charger. These items are also often referred to as portable chargers, as they can charge items like mobile phones without the need to be connected to the mains during charging, although they will need to be charged, and this is normally requires a mains charger [2].

What is solar power bank, exactly? A solar power bank is a storage device that obtains energy from the sun and uses it to charge various electronic gadgets, like phones, tablets, laptops, torches, bulbs, and many more. The major feature of this project that makes it unique is that as long as there is sunlight, even just a little bit, the solar panel will draw power. The design also can stored power during the presence of daylight is then saved for use later and allow you to charge the power bank with both the sun or regular electricity [3].

The first step in designing a product is to find a suitable problem that occurs when we use the product. One of the problem occurs with the current design power bank is that it has a low capacity of battery that makes it cannot last long enough. Second, it also became a problem when the rechargeable wire broke or forget to bring.

Next, after defining and analyzing the problem, the concept of generation is