

UNIVERSITI TEKNOLOGI MARA

**APP BASED ADVANCED FOOTSTEP
POWER GENERATION USING RFID
READER**

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ABSTRACT

This project introduces the usage of a piezo sensor, also known as a pressure sensor, which converts kinetic energy into electrical energy. Today, the majority of the world's energy is derived from non-renewable sources such as coal, oil, and gas. This overreliance on traditional energy sources adds to environmental issues including air pollution, global warming, and climate change. This project primarily involves the installation of a foot platform. Piezo sensors are mounted beneath the platform to generate voltage from footsteps. The sensors are positioned in this configuration to achieve the maximum possible output voltage. Following that, this is sent to our monitoring circuitry. Following that, this is sent to our monitoring circuitry. The system, which employs a microprocessor to monitor voltage and charge a linked battery, allows the user to keep track of the voltage. An LCD panel also displays the charge that was generated. It also contains a USB charging connector for cell phones, where users may connect cables to recharge their devices' batteries. Thus, we charge a battery with electricity from the user's footsteps, show it on an LCD using a microcontroller circuit, and enable mobile charging through the setup. Based on the simulation, the project successfully produced an LCD output and voltage from the piezo sensor output, which met the project's initial expectations.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

The footstep step generation system transfers force energy from the foot into electric energy using a piezoelectric sensor. A piezoelectric sensor is a transducer that converts mechanical energy into electrical energy, which is then employed in a variety of applications. e. According to research. Oil, natural gas, coal, and renewable energy sources such as biomass, solar, and hydropower account for a significant amount of Malaysia's energy supply. Despite having a wealth of resources, the country relies on fossil fuels for transportation and industrial purposes. In 2009, fossil fuels such as natural gas, coal, diesel, and fuel oil generated 94.5% of total electricity. Malaysia remains a net exporter of energy.

The project involves developing a technology that can be implemented in public areas such as parks, malls, and airports, where people walk frequently. The technology involves placing specialized tiles on the ground that can convert the pressure generated by human footsteps into electrical energy. The system uses piezoelectric sensors that can convert mechanical energy into electrical energy. The generated electricity can be used to power streetlights, traffic signals, and other devices, reducing the reliance on traditional power sources and promoting sustainable energy practices. The project has the potential to significantly reduce carbon emissions and help combat climate change, while also providing a cost-effective solution for generating electricity

1.2 Problem Statement

Electricity is currently considered a requirement for the human population. Concerns regarding the disparity between demand and supply of electricity have prompted the development of alternative energy sources and their sustainable application. The creation of a linear increase in human population and energy consumption led to the invention of a system for generating power from the rising population. This technique makes use of the piezoelectric effect, which allows materials to create electricity when pressure or force is applied to them. Piezoelectricity refers to the capacity of some materials to create electric potential in reaction to applied pressure. The pressure generated by moving persons can be converted into electric current using implanted piezoelectric crystals. It is an unconventional energy generation method.