# UNIVERSITI TEKNOLOGI MARA

SOLAR CLOTH DRYER

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## 1.0 PREFACE

Making decision about the Solar Clothe Dryer project for preliminary study of solar energy is an important matter since the author needs to take many design characteristics before the system was testing and experimental.

In this project the author experimental by making model for the Solar Cloth Dryer. This was made by design a model to collect solar energy from direct sunlight and suitable for placed wet cloth to dried. The author will show the design of Solar Cloth Dryer, procedure of the Solar Clothe Dryer project and experimental result. It is according to material for the model and weather when experimental done.

## 2.0 ACKNOWLEDGEMENT

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## 4.0 INTRODUCTION

## 4.1 THE SUN AND SOLAR RADIATION

The source of solar energy is the sun, which is gaseous star (approximately 80 % hydrogen and 18 % helium). This star is about 1.4 X $10^6$ km in diameter and has a mass of about 1.987 X $10^{30\ kg}$. The average density of the sun is about 1410 kg/$m^3$. In comparison the earth which is at the average distance 150 X $10^6$ km from the sun, has a diameter of 12 700 km, mass of 6.0 X $10^{24}$ kg, and an average density of 5517 kg/$m^3$

Solar radiation is the energy emitted by the sun in the form of electromagnetic waves. It is primary source of energy on earth and is responsible for the suitable terrestrial condition for all life, as well as for the meteorological phenomena on earth. Thus, conventional fuels like fossil fuels and hydropower are derived indirectly from solar energy. The earth is covered with layer of atmosphere consisting of air, gases, water vapour, dust, and many other particles. Much energy is lost when solar radiation reaches the earth's surface through the atmosphere.

On reaching the earth's atmosphere, approximately 35 % of the extra terrestrial solar radiation is reflected back to space. Atmospheric constituents absorb another 19 %. Only approximately 46% reaches the earth's surface. While filtering down trough the earth's atmosphere, some of the extra terrestrial solar energy heats the atmosphere by molecular absorption. In addition, the direct beams like extra terrestrial solar flux is scattered (reflected) into new directions by molecules, water droplets, ice crystal, dust particles, etc.

Since the earth's atmosphere is almost transparent in the solar spectrum and nearly opaque in the thermal – radiation spectrum, the earth's surface gains solar energy at higher rate than it reemits and loses thermal radiation. The