

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY -BELGAUM**



**Karnataka Law Society's**

**VISHWANATHRAO DESHPANDE RURAL INSTITUTE OF  
TECHNOLOGY, HALIYAL.**



A Project Report on

**“SOLAR POWERED EVAPORATIVE AIR CONDITIONING  
SYSTEM”**

(SPONSORED BY KARNATAKA STATE COUNCIL FOR SCIENCE AND  
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## **ABSTRACT**

Air-conditioning market is currently dominated by the mechanical vapour compression air conditioning system. But this type of system has a major disadvantage that lies in high demand to electricity for operation of the compressor, owing to the high dependency of fossil fuel burning in current electrical industry. The most common refrigerant used in air conditioner are R-410A, R-134A, are strong contributors to global warming. Hence this technology is regarded as neither sustainable nor environmentally friendly. Cost of energy, impact on the environment due to the release of ozone depleting substances and greenhouse effect due to the emission of CO<sub>2</sub> and the other economic factors have encouraged researchers to develop alternative cooling technologies.

In India, summers are very hot combined with humidity leading to heat strokes and other inconveniences. Solar air-conditioning systems are extensively used for human comfort in homes, offices and plants. They also find application in animal shelters, poultry farms, green houses, textile mills and for product cooling. These Solar air-conditioning systems can attribute to high cost of air conditioners, increased electricity consumption and lack of adequate service infrastructure. It is estimated that there about 30 million evaporative coolers used mainly during the summer months and nearly 5 million air conditioners are in use in India. Together, they represent a total load of 39 million kW. Hence the use of solar conditioning system is estimated to save about 24 million kW of electrical energy.