

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM



A PROJECT REPORT ON
“HYBRID POWER GENERATION USING SOLAR AND
WIND ENERGY”

KSCST PROPOSAL NUMBER=37S0987

A dissertation submitted to the Department of Electrical & Electronics Engineering ,
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Bachelor of Engineering

PROJECT ASSOCIATES

1. MD SAIFULLAH T.H	3VC10EE016
2. S MOHAMMED IRFAN	3VC10EE038
3. KARIM AHMED	3VC11EE405
4.RANJITH KUMAR .D	3VC11EE412

Project guide

Sri.M .JAYASHANKAR M.S
Associate professor

KSCST college Co-ordinator

Sri. Dr.KORI NAGARAJ ME. PHD
professor

Head of the Department

Sir.M.B.MALLIKARJUNA M.S
professor

principal

Dr.K.VEERESH ME.PHD.MIE.FIV



V.V.SANGHA'S

**RAO BAHADUR Y MAHABALESWARAPPA ENGINEERING COLLEGE.
DEPARTMENT OF ELECTRICAL & ELECTRONICS**

(AFFILIATED TO VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAM & APPROVED BY
AICTE, NEW DELHI, ACCREDITED BY NBA, NEW DELHI)
CANTONMENT, BELLARY-583 104 (KARNATAKA)

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Abstract:

Hybrid power systems are designed for the generation of electrical power. They are generally independent of large centralized electric grids and are used in remote areas. Hybrid systems by definition contain a number of power generation devices such as wind turbines, photovoltaic, micro-hydro and/or fossil fuel generators. Hybrid power systems range from small systems designed for one or several homes to very large ones for remote island grids or large communities. The use of renewable power generation systems reduces the use of expensive fuels, allows for the cleaner generation of electrical power and also improves the standard of living for many people in remote areas.

The sun has produced energy for billions of years. Solar energy is the sun's rays (solar radiation) that reach the earth. This enormous amount of solar energy which is renewable source can be converted into other forms of energy, such as heat and electricity by using the solar panels.

Sun Tracking System is mainly designed to find out the actual position on sun at daytime. The system detects the ultimate position at which the maximum solar energy will be generated by the panel. As the system is a closed loop system, it keeps the track of the percentage of energy generation at various positions. The solar panel alignment to the maximum power generation is controlled by the means of stepper motor whose rotation is in turn controlled from a microcontroller.

The term wind energy or wind power described the process by which the wind is used to generate the mechanical power and it used to generate electricity. Wind flows patterns are modified by the earth terrain, surface of water and can be used to generate electricity. Wind turbines convert the kinetic energy in to mechanical power. This mechanical power can be used for specific task (pumping water) or generator can converts mechanical power in to electricity to power houses, for domestic utilization in apartments, businesses, schools etc..