



# A REVIEW ON SMART IRRIGATION SYSTEM USING ARDUINO WITH SOLAR POWER

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**ABSTRACT** - His paper deals with the innovative technology in considering the various ways to irrigate the agricultural land using solar power. Since the agriculture plays the significant role in improving the country's economy, an improvement should be applied in order to increase the productivity and expand the quality of crops. So, this project signifies a smart Auto-irrigation system by using soil moisture sensors is connected to the Arduino Uno which act as a controller and a global System for mobile communication which is used to transmit and receive the data between the controller and user. The study is conducted in practically and has achieved the objectives.

**Key Words** - Soil Moisture sensors, Arduino Uno, GSM, Solar Power

## I. INTRODUCTION

The increasing demand for energy, the constant decline in existing sources of fossil fuels and the growing alarm regarding environment pollution, have pushed mankind to discover new non-conventional, renewable energy resources such as solar, wind energy, etc. for the production of electrical energy [1]. Since Oman receives sunlight all 12 months of a year. Hence utilizing it in the different fields is a clever idea. Solar energy is the most ample source of energy in the world. Photovoltaic generation is an effective approach for using the solar energy. Photovoltaic pumping systems (PVPs) are easy to be installed in any place and they require less maintenance maybe every 5 to 10 years intervals so that reduce the overall cost, just the cost of the photovoltaic cells and the other equipment needed which consider as the initial capital cost [1][2]. Also, they doesn't require non-renewable source of power to operate because the dependent of solar power. Since the solar pumps doesn't relies to the diesel or oil so they consider as a silent and clean system with no air pollution or noise [3]. So, this such system is good for people who live in faraway from the water and electricity networks and even for those who live in cities [4].

## II. METHODOLOGY

In “Smart Hybrid Electrical Vehicle Charging Station” project we are going to make the charging station for electrical vehicles which are coming in the market. In this system we are using two supply such as renewable and non-renewable, renewable supply is solar supply and non-renewable which is taken from state electricity board. One supply taking supply from solar (photo voltaic cell) and this DC supply is given to the Maximum power point tracker (MPPT) it is basically DC to DC converter its main function to maximize the energy available from the connected solar module arrays at any time during its operation. Then apply to change over unit, and source to from state electricity board taken and apply for rectification and this supply after rectification apply to change over switch. Output of change over switch is given to the battery bank it is then connected to the sine wave inverter which will further connected to the battery bank. The output battery bank connected to transformer 12V/230V and this transformer output is connected four parallel transformers of 230V/12V then the output of first transformer is connected to 5 Amp charging circuit, output of second transformer is connected to 8 Amp charging circuit, output of third transformer is connected to 10 Amp charger circuit and the output of fourth transformer is connected to the 15 Amp charging circuit.

### 2.1 BLOCK DIAGRAM

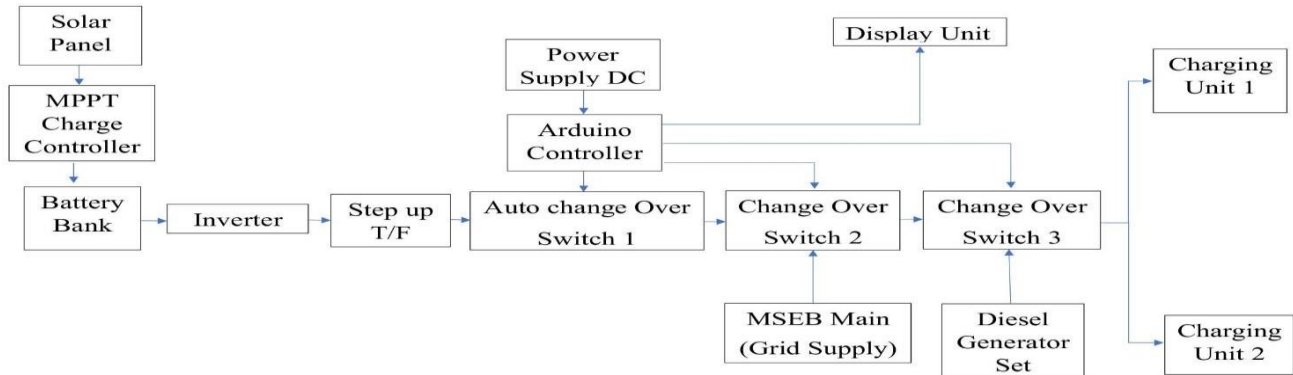


Fig.1- Block diagram

## III. RESULT

The paper presents design, Smart electric vehicle charging station. The charging station mainly works on three sources, 1) Solar Energy 2) Grid Supply 3) Diesel Generator.

The charging system works on solar power during the day period, at good climate or properly sun ray falling in solar panel the charging station continuously run in Solar Power.



#### IV. CONCLUSION

We looked at the portable EV charger that uses renewable energy to speed up the charging process.

AC (Alternating Current), but electric cars need DC (Direct Current) to charge their battery pack. An AC charger supplies the EV's onboard charger, which then converts the AC power to DC allowing the battery to charge.

#### REFERENCES

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