

Development of Automatic Power Supply Changeover Using Microcontroller

Mahesh G. Birajdar¹, Chetan B. Gaikwad², Dr. Dipali R. Shende³

Department of Instrumentation and Control

^{1,2}Student of BE, AISSMS IOIT, Pune University, Maharashtra, India.

³Assistant professor, AISSMS IOIT, Pune University, Maharashtra, India

Abstract-In many developing countries power failure is a key issue. To maintain development, the need of alternative power supply becomes necessary. For changing between main supply line and the alternative supply poses another problem. This could be done using automatic changeover. This paper present the design and construction of microcontroller based programmable automatic power change over.

The paper discusses the design and, construction and operation of program controlled power supply change over system. LCD interface was used for the output display. pic16f877a microcontroller was used to implement the control program.

Keywords-Microcontroller;Renewable;Economical; Efficient.

I. INTRODUCTION

The power failure or outage in general does not promote development in the public and private sector. Investors feel unsecure to operate in a country with frequent power failure. Most industrial and commercial processes are dependent on electrical power. The need for continuous power supply and its reliability has rapidly over the years, especially in all those areas where uninterrupted power supply is must.

There is rise in energy requirement due to increase in population day by day. Environmental concern and cost are the issues are taken under consideration while discussing various methods and processes of generation of power via hybrid renewable energy resources. The usage of coal and nuclear substrate in primary manner produces risk and creates the dangerous impact over environment. Hence use of hybrid combination of solar and wind combination gives the account of better environment .

II. BASIC BLOCK DIAGRAM OF AUTOMATIC POWER SUPPLY CHANGEOVER

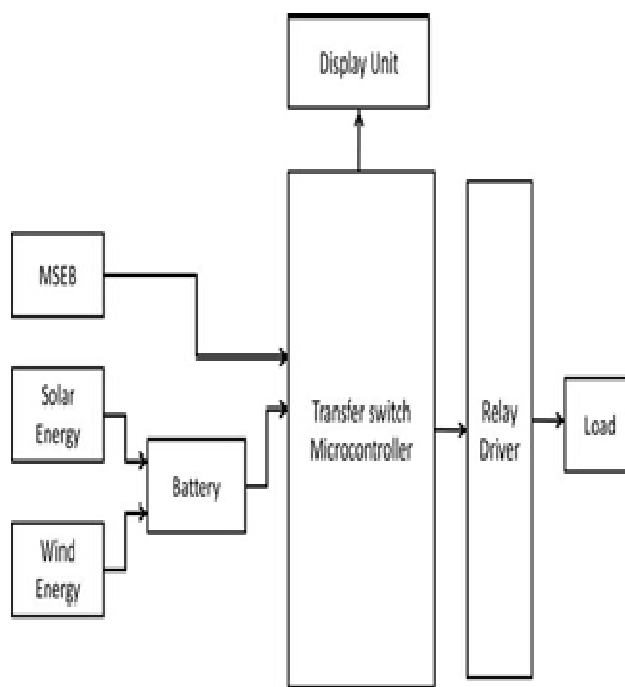


Fig 1. Block diagram of Automatic power supply changeover

III. METHODOLOGY

Fig 1 shows the block diagram of system. The control logic unit consists of the microcontroller and the control program running in its memory. The first priority is given to renewable sources ie. Solar energy and wind energy. The energy from renewable sources is stored into battery. Another source is MSEB. By these arrangement most efficient source is selected to feed the load.

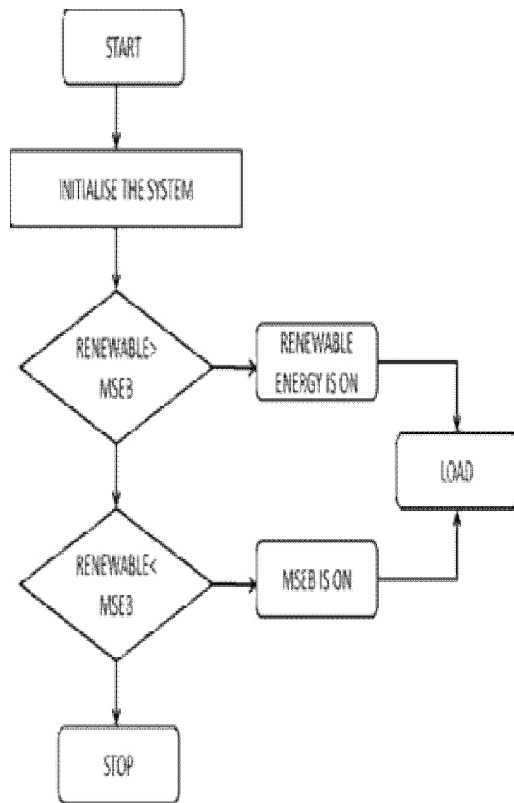


Fig 3.1 Flow chart for automatic power supply changeover

IV. APPLICATIONS

- Farm house, guesthouse, Hospital, hotels, Laboratories and R&D centers
- Remote and Rural village Electrification
- High output makes ideal for virtually any remote battery charging application

• ADVANTAGES

- Design for easy to operate, servicing and maintenance where required
- Most Eco-friendly and clean source of power
- Automatic power supply changeover is more reliable than manual.
- Long life span of SPV module and modular design

VI. DISADVANTAGES

- The effect of large scale wind farms on climate is unknown
- At night, we can't use solar energy

VII. CONCLUSION

The design and implementation of automatic power changeover has been implemented in this paper. The technology will upon the automation of the existing manual changeover system, add some intelligence to automatic power changeover by allowing the mode they want their automatic systems to operate on. The present system has improves existing automatic and manual power change over.

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