

# AUTO CHANGE OVER ON INDUCTION MOTOR THROUGH PLC & SCADA

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**Abstract** – For any country, development & growth is depends on the industries. All industries required continue power supply for mass production. The aim of our project is to develop fully automatic changeover control system for production line machinery, when main powers supply cut-off. This project is developing for changeover system through PLC & SCADA. This means that when main supply cut-off at that time PLC will gives the signals (start command) to diesel generator. After sufficient voltage built up by generator, change over circuit breaker operated automatically by PLC and alternate supply feed to PCC (power control centre) panel. When main power restore at that time PLC give signal (stop command) to generator and off the generator circuit breaker and start main supply circuit breaker. We can see all the function of control system by SCADA software. Additionally we have connected GSM system for message send to concerned person for status of power supply and diesel tank level.

**Key Words:** Auto changeover ; PLC ; SCADA ;Induction Motor

## 1.INTRODUCTION

All industries required continues power supply for mass production, there are major productivity losses due to power shading. In Manufacturing industries Power outages bring production lines to an abrupt halt. This may translate into loss of material, breakdown of machinery, and loss of productive time. This may also cause supply chains to shut down altogether. Consulting services firms and software development facilities house hundreds of highly paid professionals. Even a brief period of downtime leaves them stranded and results in loss of billable hours. In an age where it operations are an organization’s window to the rest of the world, power outages result in crashed computer systems, lost data and abrupt termination of communications with clients. This is often followed by several weeks of effort spent in recreating hundreds of man-hours of work. Programs and data may get corrupted resulting in software recovery operations that may not be resolved for weeks.

## 2. SYSTEM OVERVIEW

Main power source is a GEB source. Main power supply feed the power to transformer than transformer feed the supply to PLC panel and PLC panel feed the supply to MCC panel and MCC panel supply to industrial load. i.e induction motor and any device of industry. When main power supply is cut of at that time PLC gives the signal to generator panel and it will start the generator slack. After proper voltage build up by generator PLC give the start command to generator [DG] circuit breaker. Now power feed from generator to generator Circuit breaker to PLC panel. Main supply is primary source and Diesel Generator is secondary source. Generator panel and PLC panel control by PLC and monitoring by SCADA software Like generator status, generator slack status, main supply status and CB status.

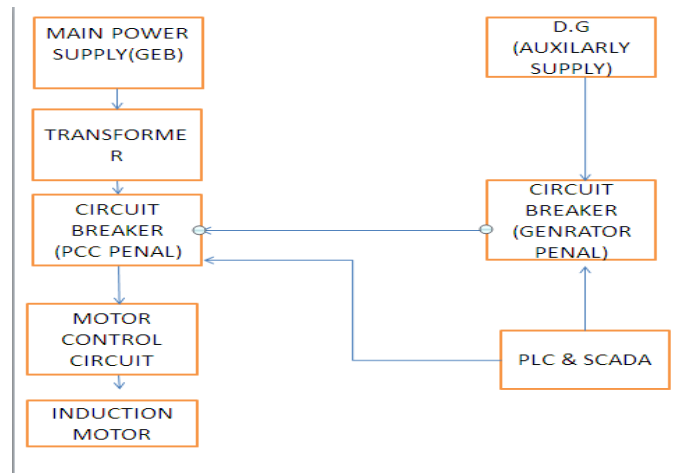
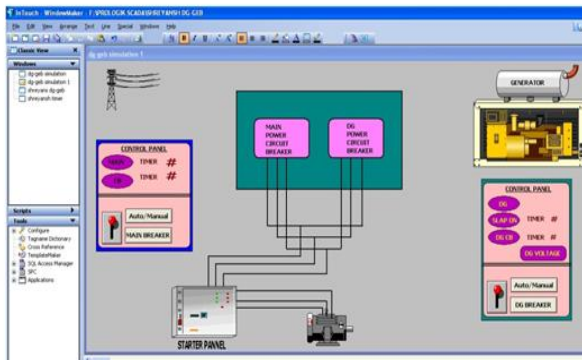


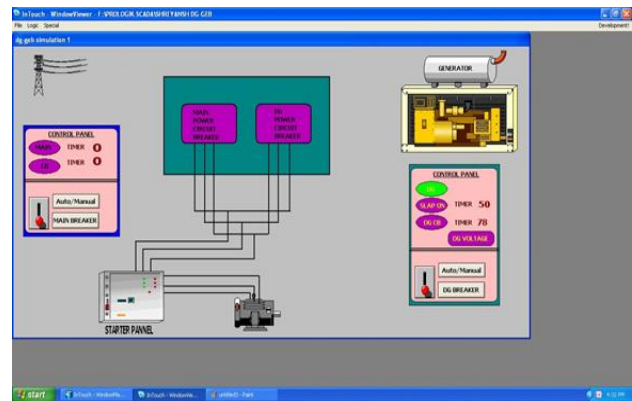
Figure -1: Block Diagram

## 3. SIMULATION RESULTS

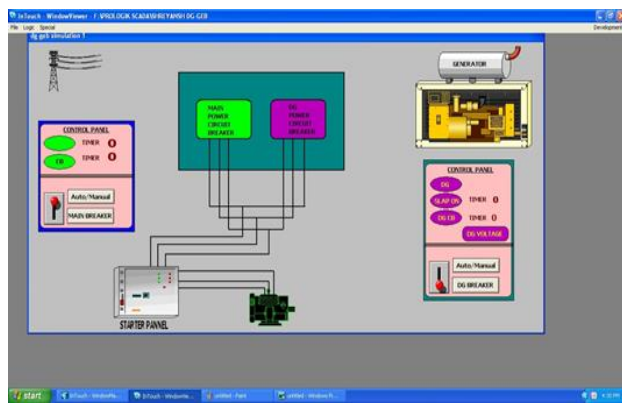
The simulation model was designed using SCADA Software. The gating Auto changeover on induction motor through scada.



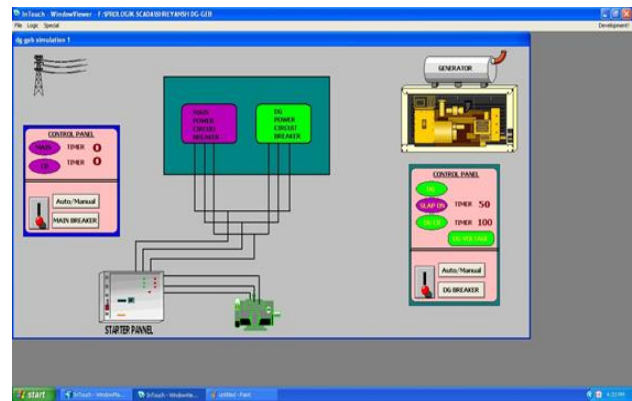
**Fig 2** Project includes various component like a dg set, transformer, circuit breaker, grid supply, control panel, generator supply, stator panel and induction motor.



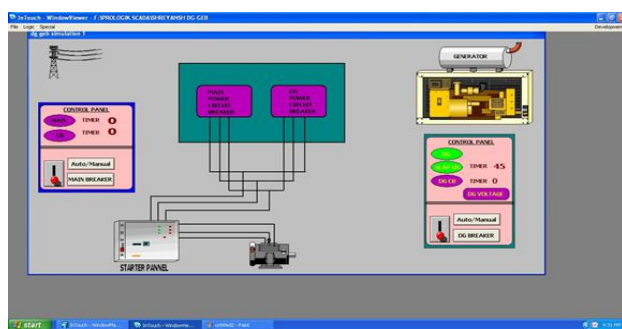
**Fig 5** After proper voltage generated by dg PLC give the start command to generator circuit breaker.



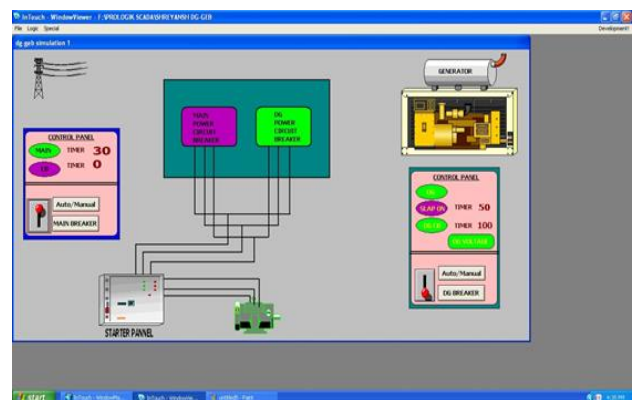
**Fig 3** Industrial load or system on is works on grid power supply (primary source).so main circuit breaker is on and motor is running continue.



**Fig 6** After proper voltage generated by dg PLC give the start command to generator circuit breaker



**Fig 4** if grid supply is down than PLC give the control command to generator panel and it will start the generator. After some time delay will be off and generator will start.



**Fig 7** At that time system is working on secondary source. Now main power supply restore than PLC read that status than it will start the delay time to cut of generator to main circuit breaker.

**Result**

Parameters	Alarm Occur	Alarm Clear	System condition
Over Current	0.5 Amp	After Reset	Working
Power Fail	Indication	DG Start	Working

**4. CONCLUSION**

Comparing Using this system will monitor main power & start DG automatically when main power fail & stop dg set Automatically when main power restored using PLC & SCADA , so we can reduce power off line in industries where continuous production is necessary . Like pharmacy industries, Chemical plant, Formulation, News press etc.

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