International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 05 Issue: 07 | July - 2021 ISSN: 2582-3930

Electrical Based Motor Interlocking

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Abstract: **The system automation is the most important thing in world of industry, commercial and residential area. The importance of this skill is required to be acquired to run the system with flexibility and infinite knowledge to achieve the efficiency. It has to be operate smoothly. This system needs expert but in this case of absence of expert the system should be taken. To overcome this the project is introduced for machine used in conveyor belt. The project is run by ON/OFF the motor by using the control wiring, so if motor fails in any case of its duty, it responds to its top at the given interval by the timer used.**

Keywords*:* Automation, Needs Expert, Overcome, Control wiring.

I. INTRODUCTION

In modern system automation is done to face difficult challenges and it is make sure that it developed for the smooth and safe operation of machine used in industries with high accuracy to make system efficient. As having this much advantages the system also have disadvantages of this automated process, to control and handle this requirements of the industry which is growing with respect to time in the present days. The automation system are not operated on manual mode very much as there is less interface of human nurture in this bulky and complex operation of automation, as flexibility and infinite modulation function of the automation field. The very skilled manpower is required who know the automation system, So the system cannot be handle by the worker with less skill, Therefore to overcome the problem the project is introduced. In this system is handled without presence of an expert at any faulty condition with specific troubleshooting.

It is related to machine used for conveyer belt motor or some identical motor. The idea is developed the new connection method of electrical circuit, So the ordinary worker of the related field can easily make against the faulty condition without an expert the project is not include either automation unit or microcontroller or processor, But there are some relays used to provide path and complete current circuit. It is simple and economical. It can alternative concept if any case of absence of expert or system failure. By considering all the things this can be affordable for small scale industries.

In rural industrial areas like small scale sugar industries, jaggery industry, stone crusher. The PLC system is not so efficient because the maintenance cost of PLC and SCADA system is more than electrical appliances. The maintenance of PLC is only done by the skilled technician and officer. By using our concept we will try to resolve this problem by efficient way and reduces time to repair system.

II. LITERATURE REVIEW

BACKGROUND STUDY

Generally because of the over voltage and over current, the PLC and SCADA system is fails and the PLC burns. It can be only repaired by the skilled technicians of their respective companies and hence more time required to repaired system and production is stopped until it is repaired and hence the system is getting less efficient than our system.

SCOPE OF WORK

III. METHODOLOGY OF PROPOSED WORK

As we know that, the motors used in the industry are induction motors & also know the dependence of efficiency of motors. The induction motors can be start or stop by using various starters. So our project is generally related to the motors used for conveyor belts. In the conveyor belt system the motors used are oversized to avoid the

overloading but due to under loading, the motor efficiency is reduced but after using our concept to the motor connections the motors can be run without worry of overload and under load conditions due to which the motors stops suddenly during the duty. The project concept is to ON/OFF the motors by using the control wiring. So if one of the motor fails to operate during its duty ,then the motors responds to it's top at the given interval by the timer used. So to encounter the problems ,The project include the electrical based motor interlocking. Which will able to operate the motor interlocking process.

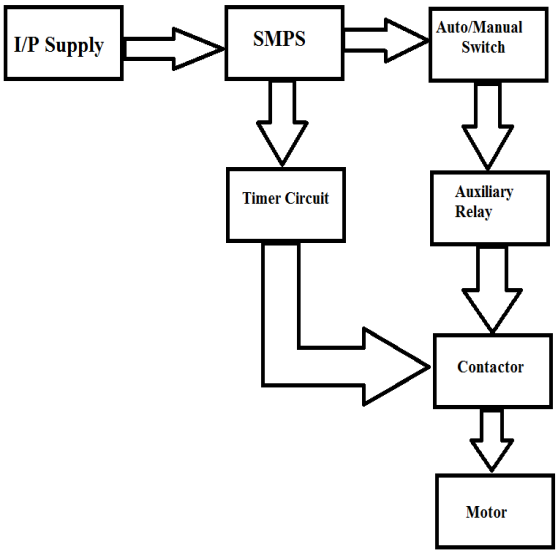

Fig.1 Block Diagram

The above block diagram shows electrical based motor interlocking ,The input supply is supplied through Switched Mode Power Supply (SMPS) for the protection of electrical equipment and to provide smooth supply. For the smooth starting auto/ manual switch is provide to run the system without jerking to the motors. Auxiliary relay is used to turn ON and OFF the contactors which is connected to the motors. Motors are provided to drive the conveyer belt.

CIRCUIT DIAGRAM

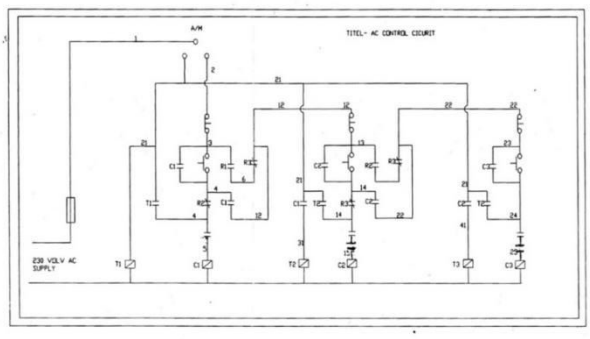

Fig.2 Circuit diagram

CONNECTION DIAGRAM

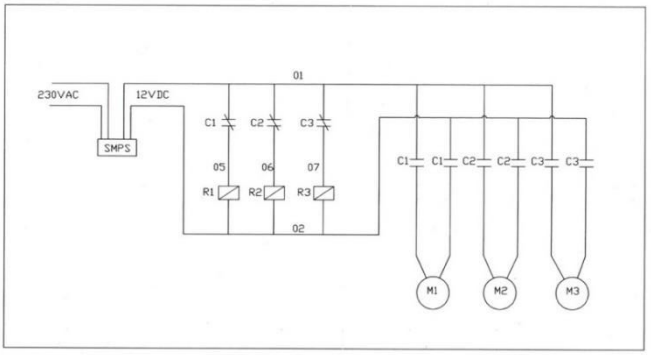

Fig.3 Connection Diagram

EXPERIMENTAL / WORKING SETUP

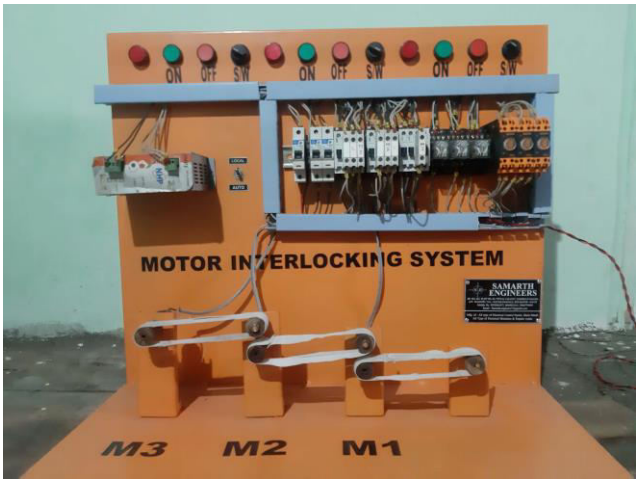

Fig.4 Experimental / Working Setup

SAFETY & PRECAUTIONS

Safety first! Electronics is a potentially dangerous hobby. Any circuit that works with 120 VAC power from an electrical outlet is especially dangerous and could potentially kill you. Here are some safety guidelines to keep you safe as you work.

Never work on a circuit while power is applied.

Do not connect power to a circuit until the circuit is finished and you have carefully checked your work.

If you smell anything burning, immediately disconnect the power and examine your circuit to find out what went wrong.

Keep your work area dry.

Always wear safety goggles.

Be careful around large capacitors; they can continue to hold voltage long after they are disconnected from power.

Be especially careful when you solder because a hot soldering iron can easily burn you.

Always work in a well-ventilated space.

Have safety equipment such as a fire extinguisher, a first-aid kit, and a phone nearby.

IV. CONCLUSIONS

Every system is automated in order to face new challenges & is a trust developed in the industry for the safety & accuracy. The main goal of this project implementation is to quick resolution of fault if an advance system fail to operate. The bulky operations may be carried out by machines better than humans but failure of machine may cause disturbance which must be cleared by man power who has adequate knowledge related to field. This system can be applied in small scale industries because it is economical and easy to access to less skill worker.

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