

Industrial Automation Error Detection

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Abstract-- Today automation used in every industrial and many other application such as loading, shifting the material in various application point and also transferring the material from one place to another place for saving time, cost, labor work, and do not cause any damage to the material while shifting the material. Scientific automation includes integration of additional functions in the software PLC. In addition to sequential control, motion control and control technology, the software PLC also includes measurement technology and other components.

Keyword - This Project is Based On Simulation By using PLC, SCADA & Belt Conveyor

I - INTRODUCTION

A Supervisory Control and Data Acquisition system has been developed with an auto fault detection capability. The Programmable Logic Controller used in a standard Supervisory Control and Data Acquisition system has been eliminated by using a microcontroller, resulting in a lower cost. Signals derived from a large number of detectors and sensors can be processed simultaneously. The design enables the system to check the alarm status, true or false i.e. normal, faulty sensor, or open circuit. The data acquisition circuit is interfaced with the microcontroller board to evaluate the current flow conditions, normal or abnormal. A program written in Visual Basic provides for a graphical layout of the plan of the plant or building to be displayed on the monitor with a clear indication of the alarm spot. A Close Circuit Television camera is made to move automatically to capture the particular location of the triggered alarm at the same time of the alarm signal. The methodological framework for managing Supervisory Control and Data Acquisition systems with auto fault detection using microcontroller constitutes the major contribution of the power-line communications has been applied as a data transfer method in mechanical system and indoor distribution networks. The characteristics of power-line

channels and the applicability of different digital modulation techniques have been widely researched. Fault detection in mechanical system is an important element for industrial growth & social development. For the last fifty years, electric power system has rapidly grown. This has resulted in large increase of the number of lines in operation & their total length. These lines experience faults which are caused by insulation breakdown & short circuits, sudden outage of line etc.

II-OVERVIEW OF SCADA – PLC

SCADA (supervisory control and data acquisition) is a type of control system in software. Most of the control systems in industries are computer controlled systems that monitor and control the real time processes in industries that exists in the physical world. SCADA systems steadily differentiate themselves from other control systems by being large scale processes that can include many numbers of sites and cover much distance. The type of PLC chosen here is 1762 MicroLogix 1200 Controllers. It contains isolated RS-232/RS485 combo port for serial and networked communication. Provides four latching or pulse-catch inputs and four interrupt inputs and also includes built-in independent 20 kHz highspeed counter. Offers Programmable Limit Switch function.

III -BELT CONVEYOR

Conveyors are durable and reliable components used in automated distribution and warehousing. In combination with computer controlled pallet handling equipment this allows for more efficient retail, wholesale, and manufacturing distribution. It is considered a labor saving system that allows large volumes to move rapidly through a process, allowing companies to ship or receive higher volumes with smaller storage space and with less labor expense. volumes with smaller storage space and with less labor expense.

Rubber conveyor belts are commonly used to convey items with irregular bottom surfaces, small items that would fall in between rollers (e.g. a sushi conveyor bar), or bags of product that would sag between rollers. Belt conveyors are generally fairly similar in construction consisting of a metal frame with rollers at either end of a flat metal bed. The belt is looped around each of the rollers and when one of the rollers is powered (by an electrical motor) the belting slides across the solid metal frame bed, moving the product

IV –IMPLEMENTATION OF PROJECT

A Project Model Consists of parts like SCADA , PLC programming Circuit & Mainly Belt Conveyor By rotor . First of all A system Check is donbe to verify if the process instruments are doing well or not.Which includes all parts activity monitoring system which takes place in PLC Circuit. Then A Object Which is pass From The starting Point of Belt Conveyor System Which is first going through a temperature Check Parameter where a Precision Temperature Check System is Check The Temperature Of An Object . Then The Product pass if The condition is satisfied of temperature which is note to be greater than 40°C . Then the ongoing product meet in the range of SCADA device where the lopps of belt conveyor rotations are count . The sensors that are firstly present check the length f the product & gives the signal To PLC which data is saved in SCADA . if the product is not satisfied with the given range of length then the product is going to scrap by end Sensor & if the product pass the length test then it goes for ultrasonic sensor which is the test of its height . Height measuring is done same as the length. The transmitter transmits the signal and receiver receives the signal if ther parameter is satisfies then product is count & if not satisfied then if again going for scrap . If the process is fully operated without any kind of error then the product no. is counted & Contioniously it going on loop by means of PLC

programming circuit . this is basic Trivia of the Project Performance .

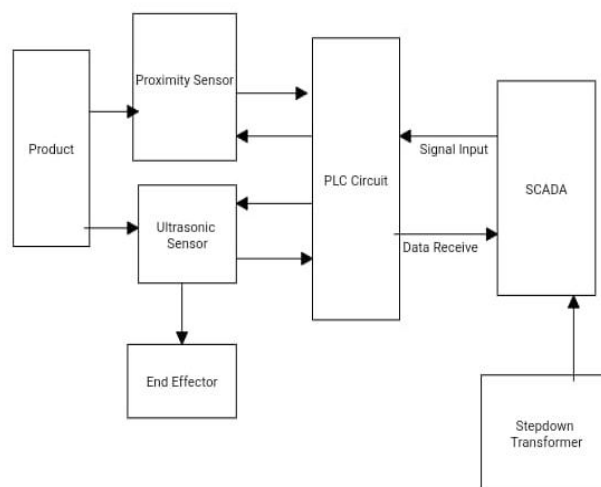


Fig – Block Diagram of Circuit

V—DESIGN DESCRIPTION

A stepdown Transformer which is Used to supply Power Voltage from 220v AC to 12 V DC is Placed for Providing Input Power . It is turn on the SCADA system & then system check is done . Then The input given to the PLC programming Circuit which transfer the signal input towards the sensor . The sensor sense the actual recording of the product & then the data is transferred to the PLC & SCADA . Both Proximity & ultrasonic Sensor senses the Length & height of the product respectively . If the given input signal is match then the product is count by End Effector . If some error is occured at the Any Sensor in terms of given input length & height then the product is rejected by the End Effector which is going to Scrap . This is basic Operation Of the Block diagram .

VI- CONCLUSION

This dissertation work covers practical applications and fault detection & protection of power system & keeps data record in data base to save time, money. To improve the performance and reduce the cost of a Supervisory Control and Data Acquisition system. To study and design a system that enables the status of the sensor to be detected. To improve the intelligence of the system by introducing auto fault diagnosis checking intervals can be preprogrammed to be every few seconds or minutes, to detect the change in sensor's state. This project effectively promotes high portability and provides a simple way to monitor the process on the go.

This system is successfully Detects the Fault in a Product which is highly recommended in Automation industries.

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