PUNE RESEARCH DISCOVERY ISSN 2455-9202
AN INTERNATIONAL JOURNAL OF ADVANCED STUDIES VOL 3, ISSUE 2

PLC BASED COAL CRUSHING SYSTEM

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Abstract *Compared with actual situation of the current industrial coal crushing system, this paper studies operation process of coal crushing system. Analyze technical characteristics of coal handling system and operating characteristics of the relevant machinery and equipment. Then, the efficient operation of coal crushing system summed up.*

Keywords: *RTD,SMPS,DPDT, PLC (Programmable logic controller).*

I INTRODUCTION

The project will include the design and construction of a PLC based coal crushing system using conveyor belt. In this paper, idea of automatic coal crushing system is given in which the basic parameters of the coal like humidity, availability and productivity has checked. This enhances the industrial coal crushing technology.

II PROPOSED SYSTEM

Fig.1 shows block diagram of coal crushing system. In this RTD sensor is used to detect temperature of coal and with the help of reference chart we detect humidity. If it gets detected bulb glows for drying purpose after that flipper gets open. And if coal is not humid directly flipper gets open and coal passes to the conveyor.

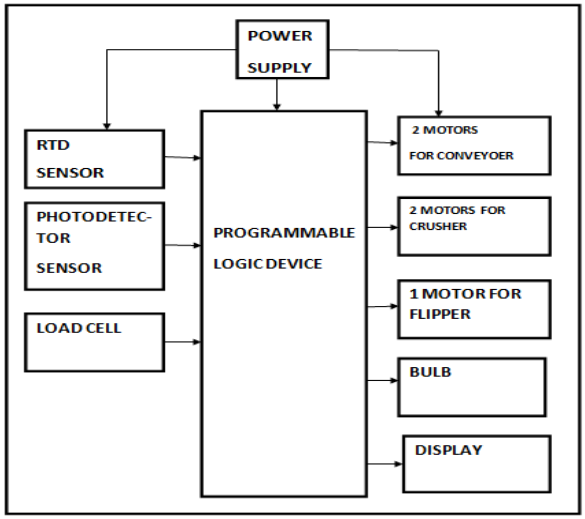

Figure 1: Block diagram of coal crushing system

As soon as coal falls on conveyor photodetector sensor detects the coal and conveyor starts. After specified time crusher starts running. After crushing of the coal, crushed coal gets store in the container. Crushed coal weighs by load cell which situated at the base of container. Weight of crushed coal displays on screen.

1.PLC(Programmable Logic Controller)

Fig.2 shows pictorial view of PLC. The name of PLC used in this project is Allen Bradley micrologix 1000. PLC provides 6:4 I/Os. It provides interfacing between input and output. It requires input power of 230V.For input section it gets converted into 24V.

Fig:2 Pictorial view of PLC

. 2. Crusher

Fig.3 shows crusher mechanism. It is a machine designed to reduce large coal into smaller coal. Crushing devices hold material between two parallel or tangent solid surfaces, and apply sufficient force to bring the surfaces together to generate enough energy within the material being crushed so that its molecules separate from (fracturing), or change .

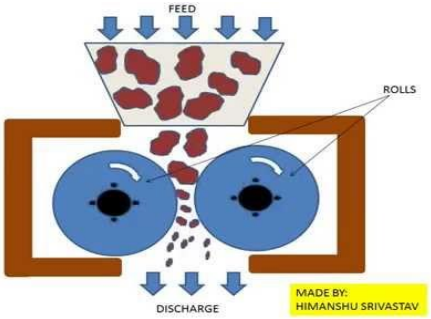

Fig:3 Crusher

The earliest crushers were hand-held stones, where the weight of the stone provided a boost to muscle power, used against a stone

anvil. Querns and mortars are types of these crushing devices.

3.Photodetector sensor(Capacitive)

Capacitive photodetector detects any non-metal object present on the conveyor. As soon as coal detects by the photodetector sensor conveyor starts. This photodetector works on capacitance.

4. Load cell

Load cell has four main terminals such as excitation(+), excitation(-), signal(+), signal(-). It converts mechanical force into electrical signal. It helps to weigh crushed coal in the conveyor hence to show productivity.

III. ADVANTAGES

1. Saves energy and it is more efficient system.
2. It supports automation.
3. Instance automation Safe practice Flexibility.

IV. CONCLUSION

This paper presents effect and working principle of coal crushing system. It summed up advanced technology of coal crushing and handling industry.

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