Automatic Brick Manufacturing System

Jaydip J. Bhesaniya
Student
Department of Electronics & Communication Engineering
Dr Subhash technical campus, Junagadh Gujarat
Technological University Ahmedabad

Hardik L. Koshiya
Student
Department of Electronics & Communication Engineering
Dr Subhash technical campus, Junagadh Gujarat
Technological University Ahmedabad

Brijesh V. Sakariya
Student
Department of Electronics & Communication Engineering
Dr Subhash technical campus, Junagadh Gujarat
Technological University Ahmedabad

Mo Suhel Kalwaniya
Student
Department of Electronics & Communication Engineering
Dr Subhash technical campus, Junagadh Gujarat
Technological University Ahmedabad

Hiren S. Parmar
Assistant Professor
Department of Electronics & Communication Engineering
Dr Subhash technical campus, Junagadh Gujarat
Technological University Ahmedabad

Abstract

In a traditional brick manufacturing process people made brick in small bucket, relying on relatively inefficient firing method, in this process brick might have few problems i.e. leaves a frog on depression on their top surface. In Automatic brick manufacturing based on PLC SCADA present the fundamental procedures for automatic manufacturing of clay brick. The process for forming of brick, to mixture an essential row material like different type of clay & coal ash, to obtain the desired shape through hydraulic pressure or vibration and then drying, firing and burning. Then to maintain a specific temperature with this process is not reliable. In this project we want to design a brick manufacturing system, which can resolve all the faults facing in an above said traditional method. We are using PLC to design automatic brick manufacturing which covers.

Keywords: PLC, SCADA, Vibration motor, Hydraulic pump, Conveyor belt

I. INTRODUCTION

In mixing process to mix up to all the required material & form proper mixing material.

For mixing purpose used to conveyor belt. Conveyor is belt rotate through two road and roads is scrolling through DC motor in forward direction. Through any one conveyor belt to pass clay on it and on other conveyor belts coal ash is pass after this further process is to combine different types of clay and ash with water in container.

By using the solenoid valve to proper mixed raw material then it is goes for a shaping hear solenoid valve open and close for 10 to 20 sec. during this time duration mixed raw material is come out.

Shaping is done through vibration. And vibration is providing by using vibration motor. The shaping of bricks also achieved by hydraulic presser, but hydraulic pressure technique is expansive and its hardware is somehow complex compare to vibration technique. After vibration process shaping and forming bricks is done.

We are use technique of drying in monsoon season is first set the number of fan according to requirement. All these processes of filling of mounds, pressing of material and dispatching of mounded bricks for one revolution are done same time. In this way two bricks are made in one revolution.
II. BLOCK DIAGRAM

III. WORKING

A. Our project divided in to three parts

1) Mixing
2) Shaping & forming
3) Firing & drying
   - In mixing process to mix up to all the required material & form proper mixing material.
   - For mixing purpose used to conveyor belt.
   - Conveyor belt is rotate through two roads and roads are scrolling through DC motor in forward direction.
   - Any one conveyor belt to pass clay on it and on other conveyor belts coal ash is pass after this further process is to combine different types of clay and ash with water in container.
   - By using the solenoid valve to proper mixed raw material then it is goes for a shaping.
   - Solenoid valve open and close for 10 to 20 sec. during this time duration mixed raw material is come out Shaping is done through vibration.
   - Vibration is providing by using vibration motor.
   - After vibration process shaping and forming bricks is done.
   - We are use technique of drying in monsoon season is firs set the number of fan according to requirement.

IV. ADVANTAGES

- Better performance
- Good quality of bricks
- Manually set the temperature
- This system is operated in all session
- Reduce the human power
- Temperature maintain
- Does not affect by the weather
- Improve the work efficiency
- Decrease the manufacturing cost of bricks
- Operate in 24×7
- Make good strength of brick
- Counting the bricks
- System is reliable
- Easy to operate
V. CONCLUSION

In section after connecting all components of the brick manufacturing system and its connection with PLC/SCADA of the program is run properly.

Result of our project we are taken a more product of brick and increase the strength of brick. We are taken a production in monsoon season

VI. SCOPE OF FUTURE WORK

Whole process visualization through SCADA.[2] Error indicator through SCADA for proper and faster troubleshooting.

Quality of products mixing through PLC logic High precision machine with a temperature, pressure, vibration, air take in consideration.

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