International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 06 Issue: 07 | July - 2022 Impact Factor: 7.185 ISSN: 2582-3930

"Design and Development of black coated Roller height checking or measuring system."

Akanksha nishikant suradkar,

Department of Electronic & Telecommication ,DIEMS Aurangabad

Abstract - Non-contact measuring system are very in demand now a day in an automobile industry. Dimension measurement through camera having huge cost . So we can use proximity sensor for Height measurement of cylindrical roller which will help to avoided measuring component surface dent mark , handling defect because measurement sensor is not in direct contact with measuring component . so by using simply low cost Proximity sensor we can check Height of cylindrical part (Cylindrical roller). Up to 100 micron accuracy.We can pass Cylindrical roller through proximity sensor which will detect the presence or non-presence of cylindrical roller & this idea we can use for height measurement.

Key Words: PLC, M4 Proximity Sensor, Pneumatic valve, Counter

1.INTRODUCTION :- Cylindrical Roller Height Mix up Check or Measure machine for size 10mmX16.8mm type is a modified Development hence it will detected short height cylindrical roller. Up to 0.1mmby using proximity sensor having measuring range up to 0.1mm.

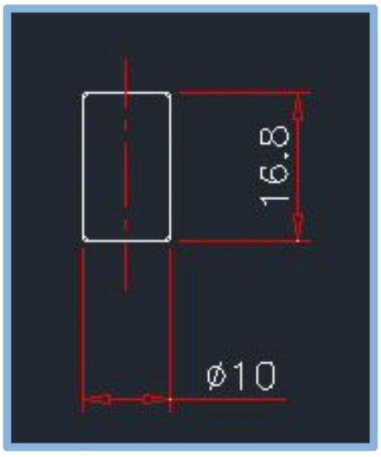
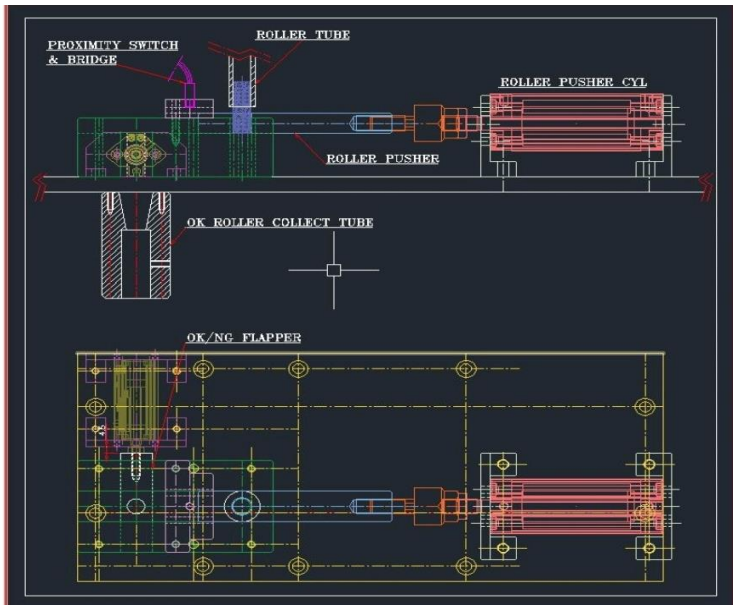


Fig :- Cylindrical Roller drawing
(Dimension are in mm)

2. Problem Definition :-

1)Cylindrical Roller length mix up check machine size - 10mm-16.8mm

3. CAD DRAWING :-



4.Process Flow :-

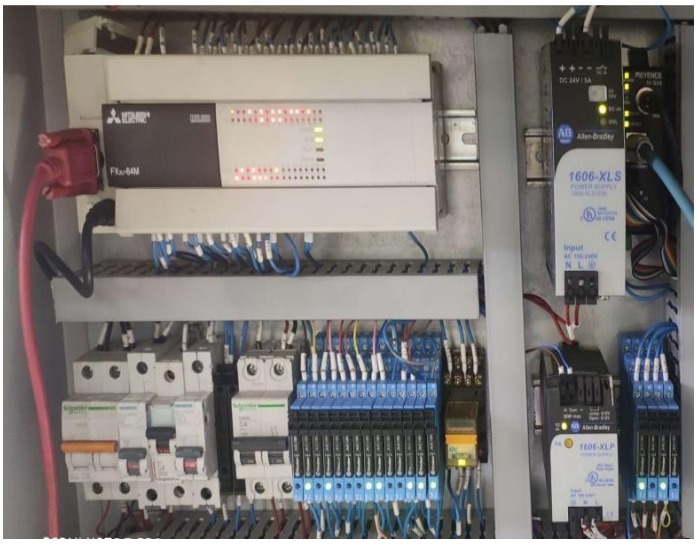
1) Press cycle start button
2) Roller hopper gets on & roller automatically feed in to tube .
3) After roller present single will come from proximity, roller pass through bridge for checking mix up with help of M4 proximity we will detect
4) If roller height OK it will directly go into OK bin through open flap cycle
5) If found NG pusher cylinder hold forward operators needs to unload roller
6) After unload same roller has to put in NG tube after only that cycle get rest & start .

5.Measuring Method /Concept/Calculation :-

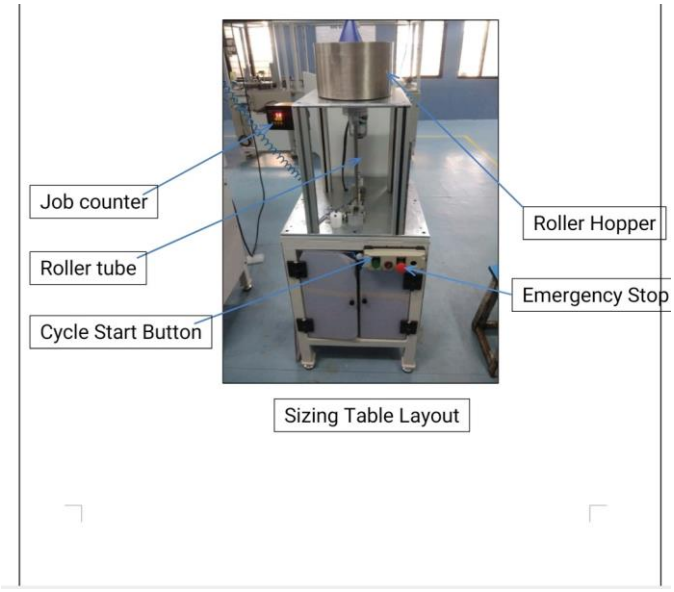
1) M4 proximity sensor used to detect roller length.
2) Roller pass through bridge height maintain 0.1mm plus roller height.(Roller height 16.8mm & Bridge height =16.9mm)

3) If roller height more then 16.8 mm then it will be stuck into bridge
4) Proximity sensor measuring sensing range 0.1mm(we set proximity above to roller Approx 0.1mm so we will able to detect roller height different within 0.1mm)
5) We required detecting roller height different around 0.1 mm

6. Hardware Implement Of Electrical Panel:-



7.Work Setup :-



8. Cost Estimation:-

1) Approx :- 50k

9. Benefits:-

Sr.no	Parameter of Comparison	Earlier Method	Present Method
1	Type of operation	Manual Method	Automatic check
2	Cycle time	5 Sec	2 Sec
3	Quality	Chance to mix NG roller into Ok	100% auto checking No mix up

3. CONCLUSIONS

Auto checking or measuring black coated roller height will overcome most of the disadvantages of manual inspection concept. It is cost efficient system, low maintains cost, The production checking or measuring black coated roller height can be manufactured by use of automation which is new way for rapid and quality production.

ACKNOWLEDGEMENT

I feel great pleasure in submitting this Dissertation Report " **Design and Development of Roller Height Check System ".** Completion of my dissertation is a task which would have not accomplished without cooperation and help from my guide. At the outset, I wish to express my deep sense of gratitude to my guide **Prof.S.R Kapde** for his guidance at every step in making of this work. ,constant encouragement and allowing me to use the all facilities in the department which it would have not been possible .I am very much thankful to all my faculty members whose presence always inspires me to do better. I am also thankful to my project coordinator Prof A.R.Wadhekar for her kind support for her kind support.I am extremely thankful to my respected Director **Dr. U. D. Shiurkar** for spending his valuable time to go through my report and providing many helpful suggestions.With all respect and gratitude, I would like to thank all the people ,who have helped me directly or indirectly, Without their silent support and encouragement this work could not have been possible.

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BIOGRAPHIES

Miss. Akanksha N.Suradkar currently pursuing M.Tech (Electronic & Telecommication) in DIIEMS