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Washer Sensing Fixture/Mechanism

Mr.Gawari K.L.[1], Mr.Kadam A.A.[2], Mr.Kafare S.A.[3], Mr.Kashid M.K.[4], Mr.Shinde S.S.[5]

[1] *Mechanical Engineering, Jaihind Polytechnic, Kuran*
[2] *Mechanical Engineering, Jaihind Polytechnic, Kuran*
[3] *Mechanical Engineering, Jaihind Polytechnic, Kuran*
[4] *Mechanical Engineering, Jaihind Polytechnic, Kuran*
[5] *Mechanical Engineering, Jaihind Polytechnic, Kuran*

Abstract —*In earlier days, many organization has face the problem in their field of mechanical of automobiles. There are many problem occurs in companies like, loss of material checking time, raw material checking, defect in product this may cause effect on the productivity. We are presenting our research paper developing on a fixture/mechanism to do proper analysis of this washer error in production system. This technics is synthesis using the fixture/mechanism we are easily sort the proper top or bottom side of the washer. In organization , the working is starting on microns so the small problem create big issue. The variations in product dimensions are not allowed. If the washer side are not proper then variations are created, this mechanism are also detects the fault in washer edge on top and bottom side or burr are not allowed in the final product. This device are also reduces these causes, this mechanism are portable where we can easily use in another station only one that above six bar pressure are required in that station. Modification in fixture/mechanism are also available, like all dimensions of washer are sense in one device that can advantage. Our fixture/mechanism is easily used in mechanical industries as well as automobiles industry where it will help in to reduced time consuming in mass production.*

Keywords- *Earlier, Fixture, Mechanism, Station, product.*

INTRODUCTION

In our project we are making the mechanism/instrument/fixture who are easily defect the top or bottom side of washer without any manpower. Company also have their manpower or it negligible manpower for the sensing of the top or bottom side of washer & also reduce the time & increased the productivity of the organization. This device is small in size & it's initial cost is also low. It is portable and its handling is also easy and working principle of the instrument is very simple.

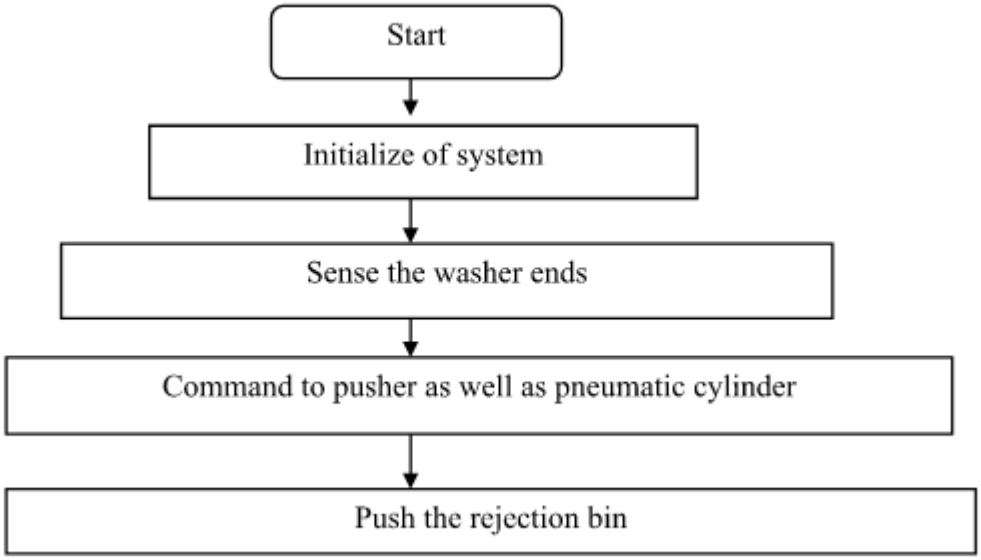
PROBLEM DEFINITION

When any organization buying the product of the washer from any other organization ,they need to specified washer that the washer top side or bottom side, the workers in the company are not specified the proper washer for the production .There are skill employee are needed; therefore it may causes reduce the productivity & effect on mass production.

METHODOLOGY

In our project is use/assigned two methodologies namely hardware methodology or sensing detection methodology, hardware methodology consists of kit of a sensing device may include electric circuits, computer programming etc.

BLOCK DIAGRAM FOR SENSING METHODOLOGY



HARDWARE METHODOLOGY

One cylinder which are hollow circular shape where one pneumatic cylinder which are the push the washer for detection. The hollow cylinder which are fixed in the square plate which are hold the whole system. The pneumatic cylinder are used for push the washer where 6 to 7 bar pressure are needed. The steel square plate are slotted where plate are hold sensor circuit washers.

DESIGN CALCULATION

1. **For hollow cylinder**
    a. Washer diameter size 20 to 30mm then length 100mm. The hollow cylinder 32 mm diameter where clearance is 2mm.
2. **For pneumatic cylinder**
    a. Where pneumatic cylinder is also use 32 mm diameter. Length is 100. Clearance is 2mm.
3. **For steel plate**
    a. Slot =32mm
    b. Therefore clearance is 2mm.
    c. Length=35mm*20mm thick
    d. Clearance in washer or this plate 1.30mm
4. **Pusher**
    a. Pusher has 30.02*10*10 size
5. **Rejection bin**
    a. Rejection plate has bin 32*32*10

MATERIAL SELECTION FOR THE FOLLOWING COMPONENT'S

1.Hollow type cylinder

Cylinder manufacture use a variety of methods to seal ends caps & rod designer specified alternative seals materials for a applications that operates in extreme high or low ambient temperatures or are exposed to caustic chemicals.

2.Pneumatic cylinders

Pneumatic cylinder generally made up of steel.

3.Sensors

Material for sensor are used as per quality requirement, It is give high accuracy. Then it's make little bit costly. But higher cost may give higher benefits of higher accuracy.

4.Washer

The material of the washer is generally may standard it may be copper, steel, M.S & it's also give heat treatment may cause increase hardness of the washer.

5.Steel plate

Steel plate of instruments in made up of the highest hard material like H.S.S. tool steel or other hard material. Rejection bin pusher of stopper are also made up of higher hardness which are gives high impact resistance & give higher safety of the product.

CONCLUSION

1. Thus the sensing processing in kit pneumatic arrangement system gives more accurate method to detect the top or bottom size of washer in organization.
2. The device is suit for any washer that is coming on real time so it is less time consuming.

ADVANTAGES

1. It is portable device
2. It is more accurate
3. It is simple in construction

DISADVANTAGES

1. Initial cost is high cause sensor is used