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IOT Based 360 Degree Drilling Machine Using NODEMCU

Yerra Tarun (Roll No: 317132920071), U. Vamsi Reddy (Roll No: 317132920064), G.Sai Kumar(Roll No: 317132920028), Rohit Kumar Singh (Roll No: 317132920010), P. Prasad (Roll No: 317132920046), Sri. R.S Kiran

1,2,3,4,5. Final Year B. Tech Students, Department of Mechanical Engineering,Sankentika Engineering College.
6. Assistant professor,Department of Mechanical Engineering,Sankentika Engineering College.

ABSTRACT:

Drilling machines have been the heart of every industry. Drilling holes in parts, sheets and structures is a regular industrial work and even in-house hold works, even in vehicles.Thus, we use rotating hinges and connectors with motor mount and supporting structure to design and construct a 360-degree drilling machine using NodeMCU for controlling the drilling operations. Multi-Directional drilling machine which can be used based on drilling holes in various location and movement and easily operation done with high accuracy. Productivity can be improved by reducing total machining time and reduced human effort and reduced manufacturing cycle time. In this present age the application of micromachining operations continues to grow. These operations are required to fabricate the products required for sectors like medical science, automobile industries and electronics manufacturing etc. which deals with miniature trends. Drilling process is one of the machining processes which is used to drill micro holes not only in micro products but also in relatively larger work pieces which require ultra-small features which can be accomplished only by drilling process.

Key words: 360˚, Flexibility, Drill Bit,Drilling machine, Performance, Movement,Material

1 COMPONENTS:

1.) DC Motor

2.) Drill Chuck

3.) Drill bit

4.) Connecting arms

5.) 3 - 955 Servo and SG90 Servo

6.) Wall/ Table mount

7.) Supporting frames

8.) Screws

9.) Bearings

10.) Ball Bearings

11.) NodeMCU

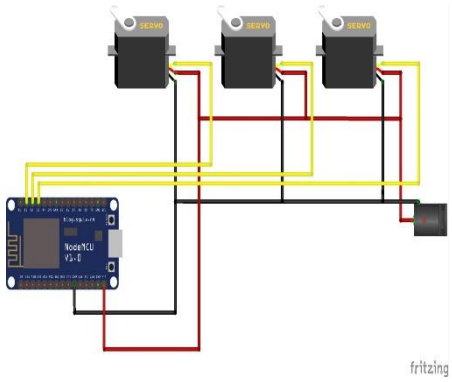
12.) Blynk App

13.) Power Adapter.

2 WORKING AND PROCEDURE:

1.)First assembly of the machine is done by placing the servo to the main base using the screws.
2.) Insert the 606 bearings in its housing and attach the plate to the main base using 3 M3 screws.
3.) Fill the path using about 25 spheres with a diameter of 6mm.
Now the main base is finished.
4.) Now place the base into the position, the main arm and the vertical drive lever, connect them using screws.
5.) Use a threated M4 rod to connect the horizontal arm and the triangle to the upper part of the main arm.
6.) Use a rod to connect the horizontal arm and the triangle to the upper part of the main arm.
7.) Connect the straight rod to the main arm and angled to the triangle.
8.) Attach the rod and the fast release of the gripper, to the front part of the Drilling machine.
9.) Connect the drilling machine wires to the power supply.
10.) Connect the NodeMCU to the power supply and turn on.
11.) After assembly connect the motors to the power supply unit.
12.) Operate the machine using the app for controlling the movement of the machine. This is done by connecting the installed NodeMCU.
13.) Now, Program the machine using programming software(Aurdino).
14.) After programming, the machine is finally ready for test trail.
15.) Connect to the machine using Android phone and open the app.
16.) This allows us to control the machine anywhere.

3 CIRCUIT DIAGRAM:



4 CONCULSION:

- Due to the various problems faced by conventional operation processes such as Poor thread finish, more time consumption, frequent tool breakage and many more. So, we have decided to design the machine which will work in any direction.
- Above is the Future model on which the tapping, drilling, boring etc operation by replacing the header with another tool bit.
- This is achieved by servo motors, it eliminates all the problem faced by conventional operation process.

This Machine is to be presented for increasing their productivity as well as quality of job. It also gives the precision quality product

5.3) PICTURES OF THE DRILLING MACHINE:

ANNEXURES:

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