

Smart Shoe Polishing Machine

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Abstract -“ In this work an attempt has been made to design and fabricate an automatic shoe polishing Machine which makes the shoe polishing process easy and time saving. This project focuses on automation of the shoe Polishing and shining process without any human involvement in the process. The main purpose to design the automatic shoe polishing machine is to reduce human effort to zero. The machine consists of three main units transportation, polishing operation section and control unit which controls the whole operation according to given instructions.

Key Words: Motor, Driver, Sensor, Display, Count.

1. INTRODUCTION

As all the persons want to wear a shoe in every place which is clean. This machine help in reducing the difficulty of existing product available in the market at the same time increase the use of this product in offices, institution etc. The Fully automatic shoe polishing machine has been designed considering all the requirement and need of users. It has a sensing device which sense the object which is shoe depending on that it start working. It is portable. The problems which arise in the manual operation have been reduced in this machine.

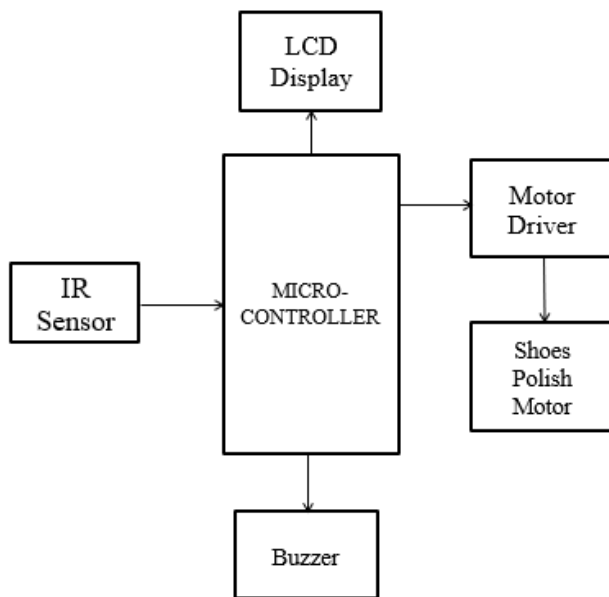
Each and every person thinks that their shoe should be clean and shiny. Taking all these into account we have designed this product which reduces the burden of manual operation at the same time increases the use of modern techniques. This project is to provide an apparatus for shining shoes which overcome the problem encountered in the conventional one. It obtains a desired shoe shining effect greater than a manual one.

The Fully automatic shoe polishing machine is used to polish your shoe within a short interval of time which reduces human strength and effort. The selection of shoe nowadays become much difficult all of them want that their shoes should give an attractive look and much better long lasting but forget to follow the steps that needed, therefore reminding all these difficulties we have developed this machine which give your shoes desired look everyday with better shine. Such a places like hospitals, preserved laboratories and highly sensitive research laboratories like computer labs, instrumentation labs, operational theatre and various production assembly sites in chemical, pharmaceutical industries which are required to be free from dust and dirt which would be carried through the shoe of the concern persons to the work area, unclean shoes causing uncomfortable environment and also sometimes hazardous to the working environment. Every person whether child(student)

which goes to school or university or gentleman which goes to office or his working place wants to wear clean and neat shoes. Therefore it is necessary to design such a machine which reduces human effort and saves the time. During early times, there is no concept of shoe polishing machine. Shoe is polished through cloth or rug. Later on when technology is evolved, then shoe polishing machines started to design. All existing shoe polishing machines till now which are required human effort to orient the shoe according to brushes during polishing. Simply put the shoe under machine, through beam sensor detects shoe. Then sensor transmits the input to Microcontroller which actuates motor mounted on driver roller for certain steps according to instructions. As soon as motor completes certain revolution, then shoe reached operation station. Then polishing brushes starts to rotate at certain rpm. After certain time brushes stop to rotate, then motor rotates for certain revolution to put shoe outside according to instructions given to Microcontroller.

2. METHODOLOGY

As The shoe is placed on the carriage using a gripper that facilitates shoes of different sizes to be placed firmly. Pressing the start button on the console will provide power for the machine. IR sensor is used heat to give input to the microcontroller which actuates the motors. Simultaneously the wax roll comes in contact with the roller brush and hence a layer of polish is applied to the shoe. After one minute which is mentioned in programing wax roll gets detached and the roller brush rotates at a higher rate in the opposite direction performing buffing action in order to provide the necessary shiny effect. The complete automation has been controlled by Arduino UNO ATMEGA-328 microcontroller and L298 motor driver circuit.



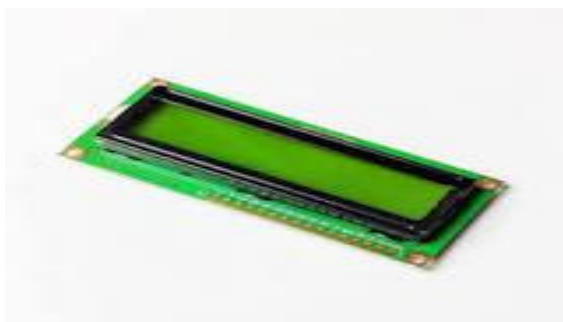
3. SYSTEM COMPONENTS

1. ATmega328L



The Atmel ATmega8A is a low-power CMOS 8-bit microcontroller based on the AVR enhanced RISC architecture. By executing powerful instructions in a single clock cycle, the ATmega8A achieves throughputs close to 1MIPS per MHz. This empowers system designer to optimize the device for power consumption versus processing speed.

2. Liquid Crystal Display



LCD is a type of display used in digital watches and many portable computers. LCD displays utilize sheets of polarizing

material with a liquid crystal solution between them. An electric current passed through the liquid causes the crystals to align so that light cannot pass through them. LCD technology has advanced very rapidly since its initial inception over a decade ago for use in laptop computers. Technical achievement has resulted in brighter displays, higher resolutions, reduced response times and cheaper manufacturing process. The liquid crystals can be manipulated through an applied electric voltage so that light is allowed to pass or is blocked. By carefully controlling where and what wavelength (color) of light is allowed to pass, the LCD monitor is able to display images. A back light provides LCD monitor's brightness. Just as there are many varieties of solids and liquids, there is also a variety of liquid crystal substances. Depending on the temperature and particular nature of a substance, liquid crystals can be in one of several distinct phases. Over the years many improvements have been made to LCD to help enhance resolution, image, sharpness and response times. One of the latest such advancements is TFT or Thin Film Transistor. TFT-LCD's make use of a very thin transistor that is applied to glass during acts as switch allowing control of light at the pixel level, greatly enhancing image sharpness and resolution. This has been particularly important for improving LCD's ability to display small-sized fonts and image clearly. LCD interfacing with 8051 is a real-world application. In recent years the LCD is finding widespread use replacing LEDs (seven segment LEDs or other multi segment LEDs).

3. IR Sensor Module

IR Infrared Obstacle Avoidance Sensor Module has a pair of infrared transmitting and receiving tubes. When the transmitted light waves are reflected back, the reflected IR waves will be received by the receiver tube. The onboard comparator circuitry does the processing and the green indicator LED comes to life. The module features a 3 wire interface with Vcc, GND and an OUTPUT pin on its tail. It works fine with 3V3 to 5V levels. Upon hindrance/reflectance, the output pin gives out a digital signal (a low-level signal). The onboard preset helps to fine tune the range of operation, effective distance range is 2cm to 80cm.

4. Gear Motor



Almost every mechanical movement that we see around us is accomplished by an electric motor. Electric machines are a means of converting energy. Motors take electrical energy and produce mechanical energy. Electric motors are used to power

hundreds of devices we use in everyday life. Motors come in various sizes. Huge motors that can take loads of 1000's of Horsepower are typically used in the industry. Some examples of large motor applications include elevators, electric trains, hoists, and heavy metal rolling mills. Examples of small motor applications include motors used in automobiles, robots, hand power tools and food blenders. Micro-machines are electric machines with parts the size of red blood cells, and find many applications in medicine.

5. Piezo Buzzer



The piezo buzzer products sound based on reverse of the piezoelectric effect. The generation of pressure variation or strain by the application of electric potential across a piezoelectric material is the underlying principle. These buzzers can be used alert a user of an event corresponding to a switching action, counter single or sensor input. They are also used in alarm circuits

4. FEATURES, LIMITATIONS AND APPLICATIONS OF THE SYSTEM:

Features of the system

- Reduce human efforts.
- To improve shining of the shoe.

Limitations of the system

- Require constant supply.
- Refueling polish jell require manually.

Application

- Hospital
- Hotel
- Hostel

5. FUTURE SCOPE

- These In future we can add QR Code for QR payment and making one earning source for needed parson or old peoples
- Also we can add computer screen at the time of shoe polishing advertisement are played on that for marketing point of view

6. CONCLUSIONS

This study focuses on the design and fabrication of a fully automatic shoe polishing machine. The following conclusions can be drawn from the study. This machine is able to grip the shoe perfectly and apply a layer of polish. It performs buffing action to give the shoe a shiny appearance. The machine assures minimal damage to the shoe being polished. It reduces the time required to perform the task significantly when compared to manual process. It reduces human involvement to a considerable level. This machine is economical when compared to the available semi-automatic machines

ACKNOWLEDGEMENT

"We would like to express our sincere gratitude to the smart shoe polishing machine project team for their innovative approach for shoe polishing . Their tireless efforts to develop and refine the smart technology have resulted in a game-changing solution that is making a real difference in manual and machine operation.

We would also like to thank the our principle and HOD who have backed our project. In addition, we are grateful to the many organizations and individuals who have provided valuable feedback and input to help shape and improve the our technology.

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