Cricket Bowling Machine

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***Abstract*— Science is basically passive observation of the universe as it exists to generate knowledge and Engineering .is making use of that. Engineers always look upon the problem from technical point of view. An engineering project is balanced cocktail of the practical aspect of the humanity and economics. New ideas and inventions are the part of engineer's life. Ball pitching devices have been used in sport practice from many years. The aim of this project is to design a cheapest ball pitching system ever to throw the automatically at different suitable adjustable speeds for the cricket practice. Typically, balls are thrown from a device using motors, discs and swing can also beset by the operator. The report shows all the design criteria (including mechanical and electrical aspects to develop a professional cricket-pitching machine.**

1.INTRODUCTION

The concept of the cricket-pitching machine provides accurate and consistent batting practice for cricketers of all standards. It is best cricket practice facilities available to all cricketers at an affordable price, which have recognized a very tangible and enjoy able way to improve batting performance. Since the successful launch of the first BOLA in 1985which was purchased by Surrey Country Cricket Club and shortly afterward the England Test Side, Stuart Williams. And this have encouraged other for continuous improvement and development of this dynamic instrument (thus to us also).

The main mechanism of the machine consists of two heavy wheels, between the concept of the

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2. BLOCK DIAGRAM

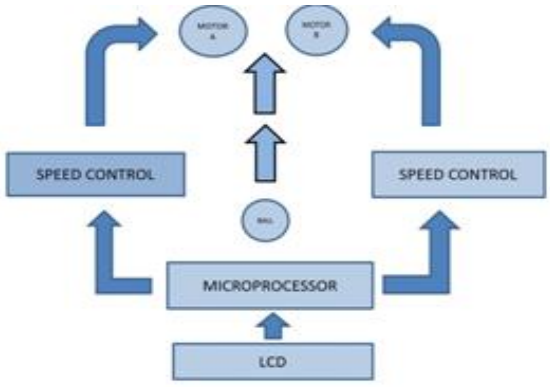

Fig 2: Block diagram of bowling machine

3. PARTS OF BOWLING MACHINE

In Bowling Machine there are several parts. They are

1 Motor
2 LCD Screen
3 Battery
4 Capacitor
5 Field Effect Transistor

3.1 PMDC MOTOR

In fig3.1, a PMDC motor, an armature rotates inside a magnetic field. The basic working Principle of a PMDC motor is based on the fact that Whenever a Current carrying conductor is placed inside a magnetic field, there will be mechanical force experienced by that conductor.

Fig 3.1 PMDC Motor

All kinds of PMDC motors work under this principle. Hence for constructing a PMDC motor, it is essential to establish a magnetic field. The magnetic field is established by using a magnet. You can use different types of magnets – it may be an electromagnet, or it can be a permanent magnet.

3.2 LCD SCREEN:

A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix.

The 16 x 2 intelligent alphanumeric dot matrix display is capable of displaying 224 different characters and symbols. This LCD has two registers, namely, Command and Data. It is a display device used in embedded system to display information. It contains

Fig 3.2: LCD Screen

32-character space on screen arranged in 16 column and 2 rows. A command is given to LCD to do a predefined task like initialization it, clearing its screen, setting the cursor position, controlling display etc.

3.3 BATTERY:

Fig3.3 Battery

Lead acid batteries are the most common large-capacity rechargeable batteries. They are very popular because they are dependable and inexpensive on a cost-per-watt base. There are few other batteries that deliver bulk power as cheaply as lead acid, and this makes the battery cost-effective for automobiles, electrical vehicles, forklifts, marine and uninterruptible power supplies (UPS). Lead acid batteries are built with a number of individual cells containing layers of lead alloy plates immersed in an electrolyte solution, typically made of 35% sulphuric acid (H2SO4) and 65% water (Figure 1). Pure lead (Pb) is too soft and would not support itself, so small quantities of other metals are added to get the mechanical strength and improve electrical properties. The most common additives are antimony (Sb), calcium (Ca), tin (Sn) and selenium (Se). When the sulphuric acid comes into contact with the lead plate, a chemical reaction is occurring, and energy is produced.

3.4 CAPACITOR:

Fig3.4 Capacitor

Capacitors are electronic components that store, filter and regulate electrical energy and current flow and are one of the essential passive components used in circuit boards. Capacitors are primarily used for storing electrical charges, conducting alternating current (AC)/, and blocking or separating different voltages levels of direct current (DC) source. While capacitors are one type of component, there are many types of capacitors that are differentiated by the materials used in construction, each providing unique features and benefits. Understanding basic capacitor construction and how different materials can affect their characteristics will aid in choosing the proper capacitor for a application.

3.5 FIELD EFFECT TRANSISTOR:

Fig3.5 Field Effect Transistor

JFET is a unipolar-transistor, which acts as a voltage controlled current device and is a device in which current at two electrodes is controlled by the action of an electric field at a p-n junction.

A JFET, or junction field-effect transistor, or JUGFET, is a FET in which the gate is created by reverse-biased junction (as opposed to the MOSFET which creates a junction via a field generated by conductive gate, separated from the gate region by a thin insulator).

4. CONCLUSION

This project is to design and improved cricket bowling machine, which is adjustable to throw at various speeds in predetermined line and length. The existing cricket bowling machines are very expensive and therefore cricket bowling machine was designed in keeping mind to develop a cost effective (economic) and compact cricket bowling machine.

This project is to provide provision for using various patterns of bowling style such as straight, in-swing, out-swing. The speed of the motor can be controlled by regulator and observed through speedometer.

This project is used schools, parks, shopping malls etc., and can also be used by people who cannot afford expensive bowling machine. This report has been made to simple, to understand everyone easily and design of the project. Go-kart is simple to made or built. It is used to travel short distance, fun racing like F1 races and there no use of fuels, so pollution free and easy to replace every component if any damage occurs. It becomes more challenging project because it involves so many constraints.

6. RESULT

7. FUTURE SCOPE

Future bowling machines can implement smart balls and machine learning interface and present a smarter tool for developing batting skills.

Future work the hardware implementation work has been completed and as a future work, most popular bowler's bowling technology has to be implemented

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