

FABRICATION OF BUTTON OPERATED ELECTROMAGNETIC GEAR SHIFTING IN TWO WHEELER

¹P.RUTH PRIYANKA, ²R.DIVYA BHARATHI

¹Assistant Professor, Department of Automobile Engineering, PACE Institute of Technology & Sciences, Ongole, Andhra Pradesh, India.

²Assistant professor, Department of Automobile Engineering, PACE Institute of Technology & Sciences, Ongole, Andhra Pradesh, India.

Abstract

There are disclosed an electromagnetic Type Gear Change System control apparatus for an automobile and a method of controlling such apparatus. A rotational output of an internal combustion engine is connected to drive wheels of the automobile and a load device. When a gear shifting-up of an electromagnetic type transmission is to be effected, the load applied by the load device is increased, or the load is connected to an output rotation shaft of the engine via a selectively-connecting device, thereby reducing the rotational speed of the output rotation shaft of the engine to a required level. In our project, two electromagnetic coils are coupled to the gear rod of the two ends. The two BUTTONs are used to activate the electro-magnetic coil so that the gear will be shifted.

Key words: Automobile, gear change system electromagnetic, buttons.

INTRODUCTION

A method of controlling a gear change of an automobile, said automobile comprising an internal combustion engine. An automatic transmission connected to an output rotation shaft of said engine so as to transmit the rotational output of said engine to drive wheels of said automobile through any selected one of a plurality of gear ratios. a load device selectively connectable to said output rotation shaft of said engine via selectively-connecting means; and means for generating a gear change control for selecting one of said gear ratios of said automatic transmission in accordance with one of operational conditions of said automobile and said

engine said method comprising the steps of controlling said selectively-connecting means when said gear. An automatic gear change control apparatus for an automobile, said automobile comprising an internal combustion engine.

An automatic gear change control apparatus for an automobile, comprising an internal combustion engine; an automatic transmission connected to an output rotation shaft of engine so as to transmit the rotational output of drive wheels through any selected one of gear ratios; apparatus comprising a load device for applying a load; means for connecting load device to output rotation shaft of engine and for generating a gear change control signal for selecting one of gear ratios of automatic transmission in accordance with one of operational conditions of automobile and said engine; and load control means for increasing the load of said load device when said gear change

OBJECTIVE

The main objective of our project is to perform an automatic gear change control apparatus for an automobile and a method of controlling such apparatus. A rotational output of an internal combustion engine is connected to drive wheels of the automobile and a load device. When a gear shifting –up of an automatic transmission is to be effected, the load applied by the load device is increased, or the load is connected to an output rotation shaft of the engine via a selectively-connecting device, thereby reducing the rotational speed of the output rotation shaft of the engine to a required level. In this work, two electromagnetic coils are coupled to the gear rod of the two ends.

PROBLEM STATEMENT

It is found to be difficult to change the gears with foot in traffic areas, physically challenged people to travel on some road conditions like. (hilly areas, faulty road conditions, etc..) The learning people are feeling tensed to change the gear with foot.

MOTIVATION

The design fabrication of button operated electromagnetic gear shifting mechanism in two wheelers is an improvement and existing ones.

- It is carried out to benefit the users continently, physically and comfortably such that when a little effort is exerted, a greater output (movement) is achieved as a result.
- These type of mechanism is mostly useful for the physically challenged people.
- In this project button operated mechanism is replaced by using solenoids (electro magnetic coils).
- The project goal is to provide good and comfortable driving conditions for people considered to be physically challenged (disabled), to travel themselves easily.

METHODOLOGY

- The current technique used is studied.
- The modification or the improvements that can be done are analyzed.
- The requirements for the project model are studied.
- The 2D layout of the model is first designed roughly.
- The fabrication of the project is done

LITERATURE SURVEY

Motorcycle is widely used around the world and particularly in India. The gear shifting system of motorcycle is conventionally manual. This paper covers development of an indigenous automatic gear shifting system for the standard motorcycle. By this system the manual mechanical gear shifting system will remain unchanged because additional electromechanical system is placed on the vehicle to

Shift the gear. So the system has both the options manual as well as automatic. This system is of low cost. This system is flexible and can be used with any two wheeler manufactured ranging from 50cc to 200cc. There are disclosed an automatic gear change control apparatus for an automobile and a method of controlling such apparatus. In this system, two electromagnetic coils are coupled to the gear lever of the two ends. The two buttons are used to activate the electro-magnetic coil so that the gear will be shifted

Just like shifting gears on a bicycle, multiple gears on a manual wheelchair can make it easier to complete many tasks of daily living. We developed an automatic gear-shifting system (AGS) for manually propelled wheelchairs. The AGS has three speeds – first gear: for ascending slopes or traversing compliant surfaces, second gear: traditional direct-drive for everyday situations, and third gear: for improved ergonomics during fast propulsion. The AGS is packaged as an add-on set of two wheelchair wheels (each with its own 3-speed transmission connecting the hand rim and tire) and onboard electronics for gear shifting. A previous gear shifting design for manual wheelchairs (Magic Wheels, Magic Wheels, Inc.; Seattle, Washington), shift on the fly automatically. The Magic Wheels device was shown to significantly reduce the level of shoulder pain when used for long periods of times, so it is likely that the AGS can provide the same benefit but with increase usability. A prototype of the AGS was constructed and tested over the course of a year although many mechanical and electrical components experienced a number of issues, each was Analyzed and redesigned. At the very least, clear guidelines were provided for future development. Additionally, a study was done to evaluate the AGS's usability by assessing user perception of the AGS ability to reduce the effort of propelling a wheelchair.

COMPONENTS AND DESCRIPTION

- Battery,
- Electromagnetic coil,
- Frame,
- Button
- Gear rod.

BATTERY

In isolated systems away from the grid, batteries are used for storage of excess solar energy converted into electrical energy. The only exceptions are isolated sunshine load such as irrigation pumps or drinking water supplies for storage. In fact for small units with output less than one kilowatt. Batteries seem to be the only technically and economically available storage means. Since both the photo-voltaic system and batteries are high in capital costs.

ELECTROMAGNETIC COIL

The key to understanding the role of permanent magnet's gear shifting lies in the general issue of biasing. Consider the simplest magnetic as shown in the figure, but omit the lower electromagnet. By omitting the finite permeability of the iron, the current in the coil controls the flux density. The key to understanding the role of permanent magnet's gear shifting lies in the general issue of biasing. By omitting the finite permeability of the iron, the current in the coil controls the flux density. The force, which was generated by shifting the gear, is related to the square of the magnetic flux density in the gaps between the pole faces and the shaft. Consequently, it is only possible to pull the shaft toward the magnet; it is not possible to push the shaft.



Figure:1. Electromagnetic Solenoid

FRAME

This is made of mild steel material. The whole parts are mounted on this frame structure with the suitable arrangement. Boring of bearing sizes and open bores done in one setting so as to align the bearings properly while assembling. Provisions are made to cover the bearings with grease.



Fig: 2.Frame

BUTTONS

A and the circuit is now closed Normally Open (NO) Push Button is a push button that, in its default state, makes no electrical contact with the circuit. Only when the button is pressed down does it make electrical contact with the circuit. When the button is pressed down, the switch makes electrical contact



Fig:3. buttons

GEAR ROD

The idea is to get the blue gear of the next gear and the collar rotating at the same speed so that the dog teeth can engage. Then you push the clutch pedal in again and lock the collar into the new gear. You can also see how a small linear motion in the gear shift knob allows you to change gears



Fig:4. gear rod

MANUFACTURING PROCESS

Manufacturing processes are the steps through which raw materials retrained formed into a final product. The manufacturing process begins with the creation of the materials from which the design is made. These materials are then modified through manufacturing processes to become the required part. Manufacturing processes can include treating (such as heat treating or coating), machining, or reshaping the material. The manufacturing process also includes tests and checks for quality assurance during or after the manufacturing, and planning the production process prior to manufacturing

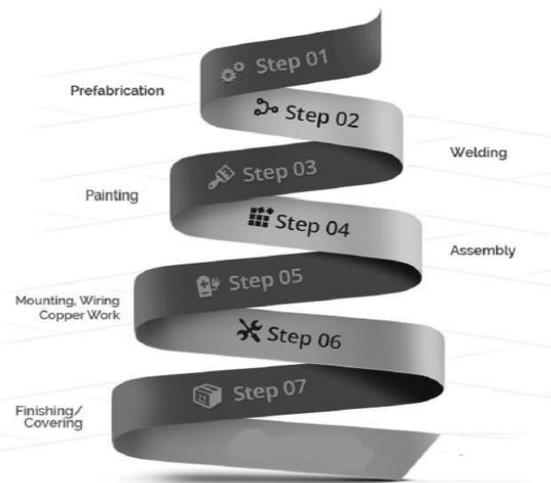


Fig :5. Flow Chart Of Work

Manufacturing involves turning raw material to finished products, to be used for various purposes. There are a large number of processes available. These processes can be broadly classified into four categories.

1. Casting processes
2. Forming processes
3. Fabrication processes
4. Material removal processes

WORKING PRINCIPLE

A method of controlling a gear change of an automobile, said automobile comprising an internal combustion engine; an automatic transmission connected to an output rotation shaft of said engine so as to transmit the

rotational output of engine to drive wheels. Battery is giving the supply to the electromagnetic coil. The two electromagnetic coils are fixed to the gear shaft of the two ends. One is used to shift the gear in upward direction. Another one is used to shift the gear in downward direction. These two coil is operated depends upon the activation of the button. Simple machines, such as the club and oar (examples of the lever), are prehistoric. More complex engines using human power, animal power, water power, wind power and even steam power date back to antiquity. Human power was focused by the use of simple engines, such as the capstan, windlass or treadmill, and with ropes, pulleys, and block and tackle arrangements; this power was transmitted usually with the forces multiplied and the speed reduced. These were used in cranes and aboard ships in Ancient Greece, as well as in mines, water pumps and siege engines in Ancient Rome. The writers of those times, including Vitruvius, Frontinus and Pliny the Elder, treat these engines as commonplace, so their invention may be more ancient. By the 1st century AD, cattle and horses were used in mills, driving machines similar to those powered by humans in earlier times.

2D DRAWING

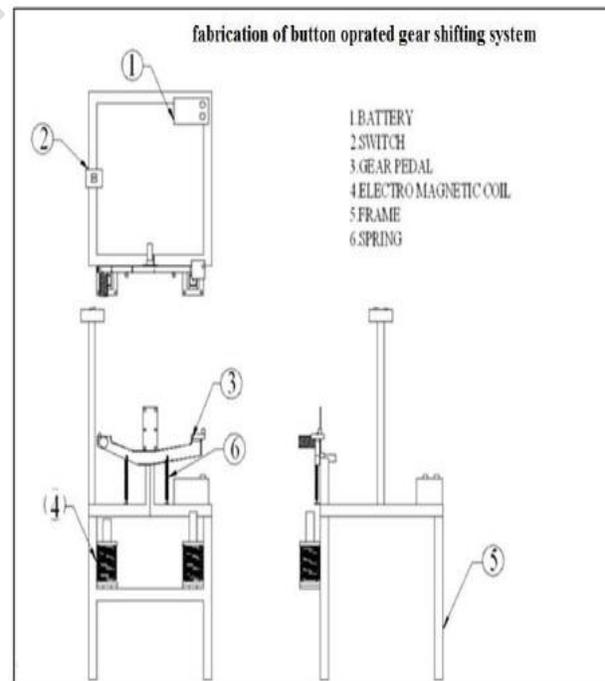


Fig:6. 2d Drawing fabrication of button operated gear shifting system structure

LIST OF EQUIPMENTS AND COST ESTIMATION

LIST OF MATERIALS

SL. NO.	NAME OF THE PARTS	MATERIAL	QUANTITY
1	Frame Stand	Mild Steel	1
2	Battery	Lead Acid	1
3	Electromagnetic coil	Coil	2
4	Touch screen	-	1
5	Connecting wire	-	req

Table: list of materials

COST ESTIMATION

SL. NO.	NAME OF THE PARTS	QUANTITY	AMOUNT (RS)
1	Frame Stand	1	1700
2	Battery	1	1800
3	Electromagnetic coil	2	2500
4	Gear	1	800
5	Connecting wire	req	200

Table 2

TOTAL = 7000

ADVANTAGES AND DISADVANTAGES

ADVANTAGES

- It requires simple maintenance
- The safety system for automobile.
- Checking and cleaning are easy, because of the main parts are screwed.
- Easy to Handle.
- Low cost automation Project
- Repairing is easy

DISADVANTAGES

- Initial cost is required.
- The system is complicated one.

APPLICATIONS

- These types of TOUCH SCREEN operated gear systems have a wide range of applications in the fields like,

- It is very much useful for Car Owners & Auto-garages.
- Thus it can be useful for the two wheeler application

CONCLUSION

We have done to our ability and skill making maximum use of available facilities. In conclusion remarks of our project work, let us add a few more lines about our impression project work. Thus we have developed a “BUTTON OPERATED ELECTROMAGNETIC GEAR SHIFTING IN TWO WHEELER” which helps to know how to achieve low cost automation. The application of electro-magnetic coil

Produces smooth operation. By using more techniques, they can be modified and developed according to the applications. Working in this area has provides a lot of practical knowledge regarding, planning, purchasing, assembling and machining. The application of electro-magnetic coil produces smooth operation. Even though the initial cost of button operated electro-magnetic gear shifting system is very high, but it is very much useful for two wheelers, car owners & auto-garages. By using more techniques, this design can be modified and developed according to the applications.

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3.Ram Bansal Assistant Professor, Mechanical Engineering Department, Medi-Caps University, Indore Idrees Rajgarhwala, Shivam Kanungo, MufaddalBurhanpurwala, Yash Pathak B.E. Research Scholar, Automobile Engineering, Medi-Caps University, Indore.

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