
RESEARCH PAPER ON AUTO CLUTCH SYSTEM IN AUTOMOBILE

DR. A.C. Gangal , Anurag Bhogale , Swapnil Pol , Devvrat Mestry , Aditya Anavkar

Department Of Mechanical Engineering, S.S.P.M College Of Engineering, Kankavali, India

ABSTRACT

Our main focus in this project is to design a small auto-clutch for automobile system or for a car system. In this project we have to studied the automatic clutch mechanism in vehicles. The fabrication part of it has been considered with almost case for its simplicity and economy, such that this can be accommodated as one of the essential tools on automobile garages. With automatic clutch system for car you can convert a manual car to semi-automatic at the touch of button. This automatically activates the clutch pedal movement in a completely controlled system. Then the car will be driven by using just the brake and accelerator. Features of using this type of system is changing gear without using your foot to operate the clutch and more fuel economical then an automatic. Auto-clutch comprises of two units first is elaborate electronic control and the second is electric motor.

I. INTRODUCTION

Auto wellbeing is the shirking of car crashes or the minimization of destructive impacts of mishaps, specifically as relating to human life and wellbeing. Unique wellbeing highlights have been incorporated with autos for a considerable length of time, some for the security of auto's inhabitants just, and some for the wellbeing of others.

II. SCOPE

- * It requires basic upkeep cares
- * The wellbeing framework for the vehicle.
- * Checking and cleaning are simple, in light of the principal parts are screwed.
- * Easy to Handle.
- * Low-cost mechanization Project
- * Repairing is simple.
- * Replacement of parts is simple. he wellbeing framework for the vehicle.
- * Checking and cleaning are simple, in light of the principal parts are screwed.
- * Easy to Handle.
- * Low-cost mechanization Project
- * Repairing is simple.
- * Replacement of parts is simple.

III. LITERATURE REVIEW

The aim is to design and develop a control system based on pneumatic breaking system of an intelligent electronically controlled automotive braking system. Based on this model, control strate, such as un 'antilock braking system' (ABS) and improved maneuverability via individual wheel braking are to be developed and evaluated.

There have been considerable advances in modern vehicle braking systems in recent years. For example, electronically controlled ABS for emergency braking, electronically controlled hydraulically actuated individual brake-by-wire

(BBW) systems for saloon cars and electronically controlled pneumatically actuated systems for heavy goods vehicles. The work of recent years shall for the basis of a system design. approach to be implemented. The novelty of the proposed research programmed shall lie in the design and evaluation of control systems for achieving individual wheel motion control facilitated by BBW. In the case of BBW the brake pedal is detached from the hydraulic system and replaced by a "brake pedal simulator. The simulator provides an electrical signal for the electronic control system.

Preliminary modeling and simulation work considers a quarter cars initially followed by a natural progression to the half car and full four wheel station cases. The model is to be constructed in modular form thus allowing the replacement / interchange of the various blocks and their associated technologies. Upon completion of the full

vehicle braking model, sensitivity analyses will be carried out. Once the preliminary simulation model has been thoroughly benchmarked and existing control system strategies evaluated, an audit of the technology used is to take place and this will provide a basis for comparison of iterative technologies / techniques.

IV. WORKING

Disclosed are a semi-auto clutch system of a manual transmission vehicle and an operating method thereof. Said semi-auto clutch system comprises: a first position sensor which detects a position of a clutch pedal in a manual transmission vehicle; a second position sensor which detects a position of an acceleration pedal in said manual transmission vehicle; a brake signal input unit which inputs a brake signal indicating whether a brake of said manual transmission vehicle is operated; a transmission signal generation unit which generates a transmission signal by an input of a driver of said manual transmission vehicle; a control unit which generates a motor driving signal in accordance with an operation mode determined in advance, according to the position of the clutch pedal generated from said first position sensor, the position of the acceleration pedal generated from said second position sensor, information indicating whether the brake inputted by said brake signal input unit is operated, and the kind of said transmission signal, if said transmission signal is generated; and a motor which operates according to the motor driving signal generated from said control unit and is mechanically connected with said clutch pedal to determine the position of said clutch pedal.

V. MODELLING AND ANALYSIS

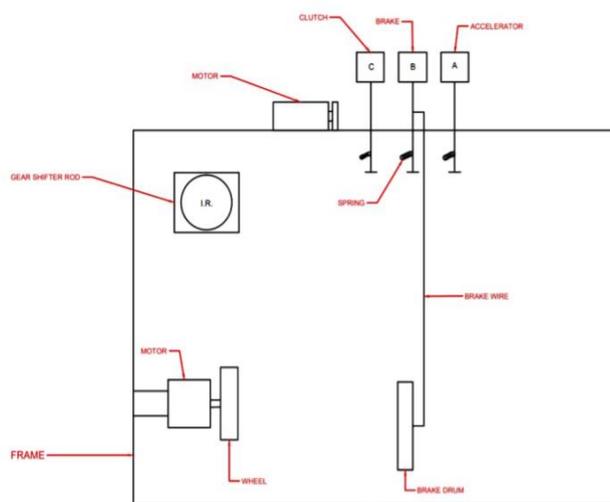


Figure 1: Schematic layout

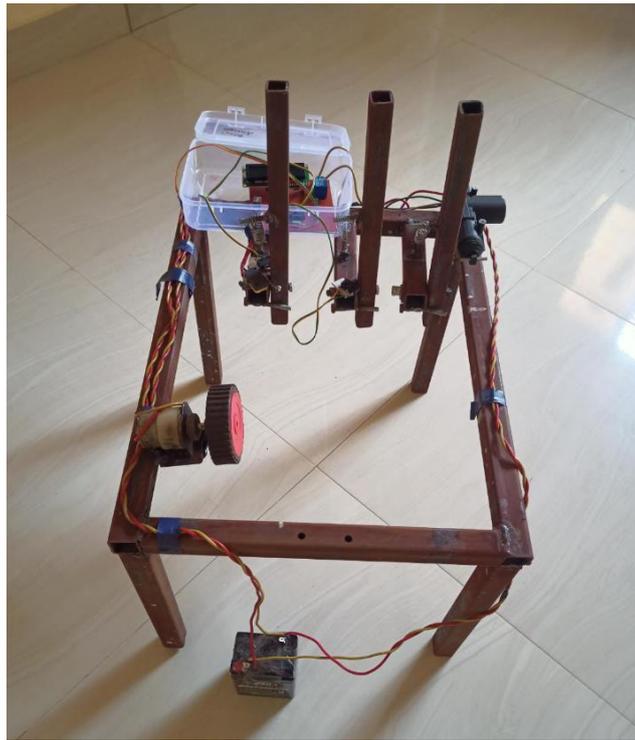


Figure 2 : Actual Model

Table 1: Raw Material and their Cost

SR NO	PART NAME	MATERIAL	QTY	COST
1	Main Frame Fabrication out of 35x5mm Angle size 560x700x600mm(HD) Weight 28(kg)	Mild Steel	1	3000/-
2	Spring	Mild Steel	3	1500/-
S3	Motor/actuator12v	STD	1	1500/-
4	Circuit 1 Nos	STD	1	1400/-
5	Adopter/battery 12v -1 Nos	STD	1	1250/-
6	IR sensor	STD	1	1500/-
7	Atmega 328 p-Ic	STD	1	400/-
8	Resistor	STD	8	500/-
9	Capacitor	STD	1	500/-
10	Block	STD	1	250/-
11	Coloring Expenses	-	1	500/-
12	Welding Rod Packet	STD	1	420/-
13	Cutting Wheels	STD	10	480/-
14	Grinding Wheels	STD	1	100/-

15	Relay	STD	1	320
16	Nut bolts	STD	1	200/-
17	Power plug	-	2	80/-
14	Miscellaneous Expenses Rent of Welding, Grinding, Drilling	-	-	1100/-
	TOTAL	-	-	15000/-

VI. RESULTS AND DISCUSSION

The auto clutch system is design in a compact and efficient to apply the clutch of the vehicle. The auto clutch was tested to check whether the system is working properly. The test result shows a normal (regular) vehicle and convert it semi automatic. The testing of model is capable of performing according to design specification. The design is very compact and easy to install. It design is very compact and easy to install. It is very cheap in a cost. It is found that the auto clutch system is capable drive in any position. This system is able to provide more safety during car in running position. This system is reduce the wear and tear in applying brake, clutch, accelerator .It reduce the fuel consumption.

VII. CONCLUSION

This project work has provided us an excellent opportunity and experience, to use our limited knowledge. We gained a lot of practical knowledge regarding, planning, purchasing, assembling and machining while doing this project work. We feel that the project work is a good solution to bridge the gates between institution and industries. The "FABRICATION OF AUTOCLUTCH" is working with satisfactory conditions. We are able to understand the difficulties in maintaining the tolerances and also quality. 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 "FABRICATION OF AUTO CLUTCH" which helps to know how to achieve low cost automation. The operating procedure of this system is very simple, so any person can operate. By using more techniques, they can be modified and developed according to the applications

IX. REFERENCES

- [1]. Arun Kumar N., Srinivasan V., Krishna Kumar P., Analysing the strength of unidirectional fibre orientations under transverse static load, International Journal of Applied Engineering Research, v-9, i-22, pp- 7749-7754, 2014.
- [2]. Srinivasan V., Analysis of static and dynamicload on hydrostatic bearing with variable viscosity and pressure, Indian Journal of Science and Technology, v-6, i-SUPPL.6, pp-4777-4782, 2013.
- [3]. Srinivasan V., Optimizing air traffic conflict and congestion using genetic algorithm, Middle - East Journal of Scientific Research, v-20, i-4, pp-456-461, 2014.

- [4]. Praveen R., Achudhan M., Optimization of jute composite as a noise retardant material, International Journal of Applied Engineering Research, v-9, i-22, pp-7627-7632, 2014.
- [5]. Raja Kumar G., Achudhan M., Srinivasa Rao G., Studies on corrosion behaviour of borated stainless steel(304B) welds, International Journal of Applied Engineering Research, v-9, i-22, pp-7767-7772, 2014.
- [6]. Ganeshram V., Achudhan M., Design and moldflow analysis of piston cooling nozzle in automobiles, Indian Journal of Science and Technology, v-6, i-SUPPL.6, pp-4808-4813, 2013.
- [7]. Ganeshram V., Achudhan M., Synthesis and characterization of phenol formaldehyde resin as a binder used for coated abrasives, Indian Journal of Science and Technology, v-6, i-SUPPL.6, pp-4814-4823, 2013.
- [8]. Achudhan M., Prem Jayakumar M., Mathematical modeling and control of an electricallyheated catalyst, International Journal of Applied Engineering Research, v-9, i-23, pp-23013-, 2014.
- [9]. Anbazhagan R., Satheesh B., Gopalakrishnan K., Mathematical modeling and simulation of modern cars in the role of stability analysis, Indian Journal of Science and Technology, v-6, i-SUPPL5, pp-4633-4641, 2013.
- [10]. Udayakumar R., Kaliyamurthie K.P., Khanaa, Thooyamani K.P., Data mining a boon: Predictive system for university topper women in academia, World Applied Sciences Journal, v-29, i-14, pp-86-90, 2014.