



CAMLESS ENGINE USING SOLINOID

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ABSTRACT

- In this project, we have developed the free valve concept, also known as fully variable valve actuation, offers the unique ability to have independent control of the intake and exhaust valves in an internal combustion engine.
- For any engine load criteria, the timing of intake and exhaust can be independently programmed
- Internal combustion engine occupies a significant spot in present day. with the most recent plan alteration in different part being advanced to improve the efficiency and generally speaking performance, one segment has been kept untouched that is camshaft.
- Cam control the breathing channels of the engine that is the planning of valves through which fuel air mixture enters and fumes is driven out. with help of push rods , rocker arms, stiff springs. With increasing performance demands engine specialists and researchers over the world are perusing radical cam less structure which promises to give ICE's a greater improvement in effectiveness.

1. INTRODUCTION

- As we introduce that the automobile engine runs without cam shaft mechanism.
- From this we have researched that the engine can be run without cam and cam mechanism by using SOLENOID, this mechanism can be done electrically.
- So the engine valve can be open and close through the solenoid valve using sensor.
- This introduces many advantages in AUTOMOBILE sector.

2. LITRATURE SURVEY

- Zltina Dimitrova, Massinissa tari, Patrick Lanusse, Francois Aioun, Xaviour Moreau Have done research on the topic "improvement and control of a camless engine Valve train "and they show an inventive utilization of an electromagnetic actuator for future camless engine valve train.
- The actuators are proposed for little fuel engine. The structure procedure is inversed to make a control-orchestrated model.
- Zibani, R.marumo, J.chuma, I.Ngebani and K.Tsamaase have studied on the title "Venturing Valve Actuator for a camless IC Engine" here they show it offers many advantages over poppet valve system. cylinder valve collaborations.
- In tending to the circumstance, the venturing valve pivots oppositely to the cylinder movement without any connections.

3. DESCRIPTION

- For maintain sustainability of camless engine there can be worked on its valve timing so as to increase its efficiency and there can future in the design of camless in that small space along with that on its service cost something could be done to have in working condition for long time for its design as now there will between no camshaft which reduces the friction.
- It is hard to acknowledge such a structure due to the trouble related with machining a mind-boggling geometry inside a little space.
- The control designing is expected for a vivacious control of the actuator.

4. WORKING PRINCIPLE

A camless or free-valve piston engine is an engine that has poppet valves operated by means of electromagnetic, hydraulic, or pneumatic actuators instead of conventional cams. Actuators can be used to both open and close valves, or to open valves closed by springs or other means.

Camshafts normally have one lobe per valve, with a fixed valve duration and lift. Although many modern engines use camshaft phasing, adjusting the lift and valve duration in a working engine is more difficult. Some manufacturers use systems with more than one cam lobe, but this is still a compromise as only a few profiles can be in operation at once. This is not the case with the camless engine, where lift and valve timing can be adjusted freely from valve to valve and from cycle to cycle. It also allows multiple lift events per cycle and, indeed, no events per cycle switching off the cylinder entirely.

Advantages of Camless Engines

- Higher RPM.
- Better Fuel Economy.
- Lower Carbon Emissions.
- Increased Engine Lifespan

5. CONCLUSION

The project we carried Camless engine using solenoid is to lesser the engine weight, avoid frictional losses, avoid CO2 emissions, increase the vehicle's mileage, with an user friendly driving system.

REFERENCE

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