M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

DEPARMENT OF MECHNICAL ENGINEERING

MINOR PEOJECT FINAL REVIEW

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AUTOMATIC BUMBER IN FOUR WHEELER

INTRODUCTION

The technology of pneumatics plays a major role in the field of automation and modern machine shops and space robots. An extendable and retractable bumper (E/R bumper) is presented in this project. The aim is to design and develop a control system based intelligent electronically controlled automotive bumper activation is called AUTOMATIC PNEUMATIC BUMPER SYSTEM

OBJECTIVE

The central government has also banned the installation of bumpers on four-wheelers as the bumpers of four-wheelers cause the airbags to fail to function during accidents and cause serious damage to the opposing vehicle and the public.So we design this type of project.

ABSTRACT

The technology of pneumatic plays a major role in the field of automation and modern machine shops and space robots.. The aim is to design and develop a control system based intelligent electronically controlled automotive bumper activation and automatic braking system is called automatic bumper in four wheeler this project consists of ir transmitter and receiver circuit, control unit, pneumatic bumper system and pneumatic braking system

PNEUMATIC SYSTEM

A pneumatic system is a mechanical system that uses compressed air or gas to transmit power or control signals. The term "pneumatic" comes from the greek word "pneuma," meaning air or breath. Pneumatic systems are widely used in various industries for tasks requiring automation, such as operating machinery, powering tools, and moving components.So we use pneumatic system in this project.

COMPONENTS

- 1) Pneumatic single acting cyclinder
- 2) Optical sensor
- 3) Solenoid valve
- 4)IR sensor
- 5) Stand
- 6)Wheel and brakes

IR SENSOR

A sensor is a transducer used to make a measurement of a physical variable.

PNEUMATIC CYLINDER

Pneumatic cylinder, also known as air cylinder, is a mechanical device which uses the power of compressed gas to produce a force in a reciprocating linear motion.

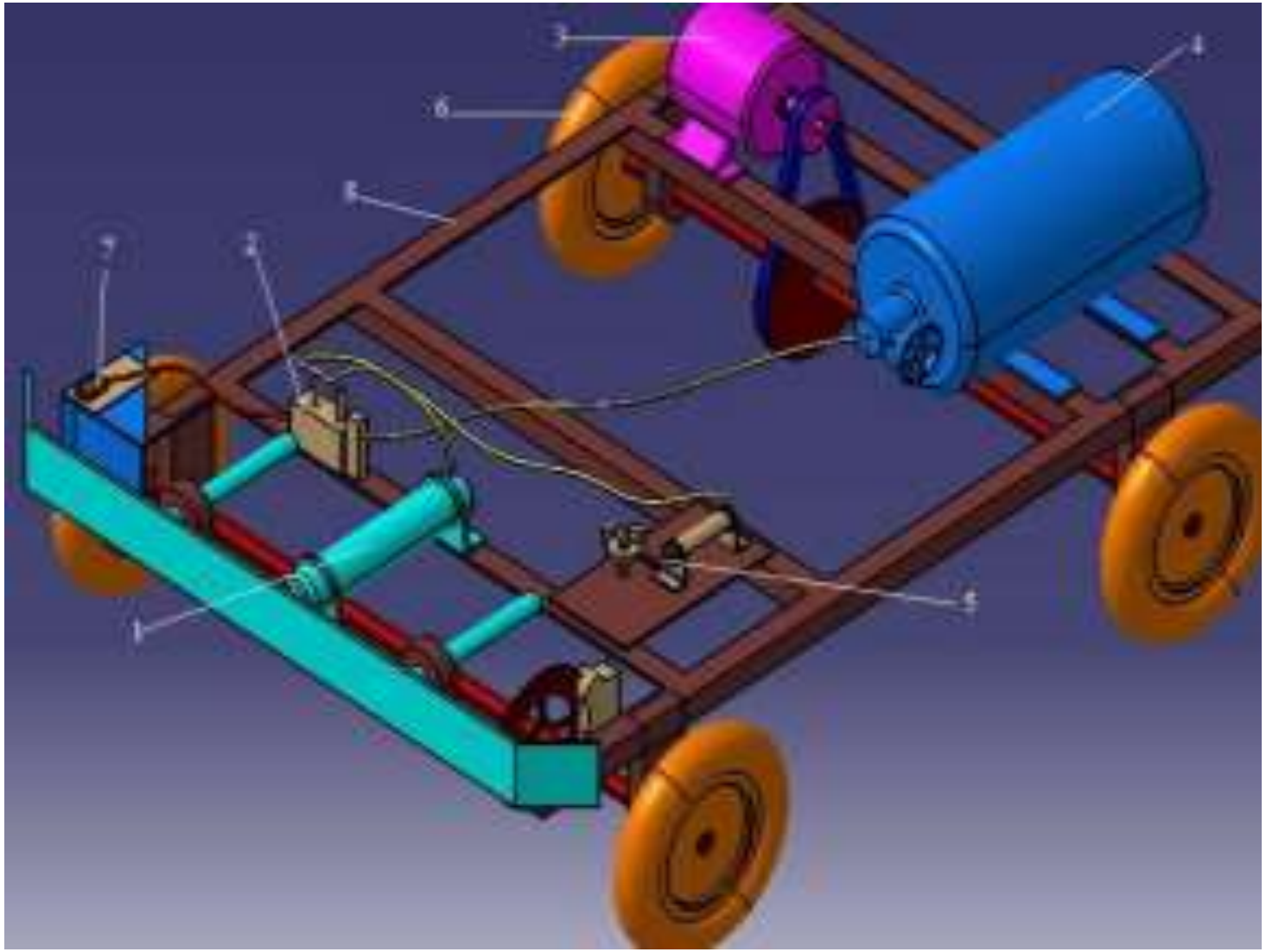
OPTICAL SENSOR

Optical sensors are characterized specified by spectral, radiometric and geometric performance the spectral characteristics are spectral band and band width, the central wavelength, response sensitivity at the edges of band.

SOLENOID VALVE

A solenoid valve is an electromechanical operated valve.Solenoid valves differ in the characteristics of the electric current they use, the strength of the magnetic field they generate, the mechanism they use to regulate the fluid, and the type and characteristics of fluid they control.

LAYOUT OF OUR PROJECT



ADVANTAGES

1)Enhanced safety.
2)damage reduction.
3)collision avoidance.
4)improved pedestrian safety.
5)aerodynamic adjustments.
6)insurance benefits

DISADVANTAGE

- High cost
- Increased maintenance and repairin cost
- Reliability in extreme condition
- Added weight and complexity

APPLICATION

- Collision mitigation and impact reduction
- Pedestrian safety
- Enhanced parking assistance
- Active aerodynamics
- Active aerodynamics

CONCLUSION

- The project work is a good solution to bridge the gates between institution and 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.


Thank You!