

# AUTOMOBILE BASED PROJECTS 2018 – 19



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Here is the list of project titles 2018 and 2019.



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Here we provide **MECHANICAL ENGINEERING 2018 project lists** with abstracts. we do train a student from basic level of mechanical engineering which bases the project that includes live project development class and also detailed information buy our S.M.E ( Subject matter experts ) , projects implementation, final project demo . Wide variety of **AUTOMOBILE** based projects, both real time and prototype is been developed.

If you have questions regarding these projects feel free to contact us. You may also ask for abstract of a project idea that you have or want to work on.

The **own projects idea** for diploma and Engineering students can also encouraged here.

## 2018 – 19 AUTOMOBILE BASED PROJECTS

TITLE – AIR BRAKE SYSTEM USING EXHAUST GAS ( TAE 001 )

- ▶ **The aim is to design and to develop an air brake system based on exhaust gas is called “fabrication of air brake system using engine exhaust gas”. The main aim of this project is to reduce the workloads of the engine drive to operate the air compressor, because here the compressor is not operated by the engine drive. Here we are placing a turbine in the path of exhaust from the engine. The turbine is connected to a dynamo by means of coupling, which is used to generate power. Depending upon the airflow the turbine will start rotating, and then the dynamo will also starts to rotate. A dynamo is a device which is used to convert the kinetic energy into electrical energy. The generated power can be stored in the battery and then this electric power has loaded to the D.C compressor. The air compressor compresses the atmospheric air and it stored in the air tank and the air tank has pressure relief valve to control the pressure in the tank. The air tank supplies the compressed pneumatic power to the pneumatic actuator through solenoid valve to apply brake. The pneumatic actuator is a double acting cylinder which converts hydraulic energy into linear motion. Keyword: - Dynamo, DC Compressor, and Pressure relief valve etc....**

**TOPIC – AUTOMATIC TIRE INFLATION AND DEFLATION SYSTEM ( TAE 002 )**

The main aim of our project is to develop a “Automatic tyre inflation and deflation system” .This can be placed in all automobiles while long drives and that can be utilized while climbing uphill or down hills. It is very necessary for the every automobile to be cautious while driving through long distances. So we have fabricated this machine to fill the air automatically by using control units. In this project main function is suddenly the air is decreased to the automobile vehicles the sensor signal alerted to the person when the use of air tank to fill the air in the tyre. Then the air pressure is increased to the tyre in the vehicle it is same as the process of indicating the sensor signal through the person when the use of solenoid valve to reduce the excess air in the tyre

**TOPIC – BUTTON OPREATED GEAR SHIFTING ( TAE 003 )**

The main objective of this concept is used to apply the gear by using automation system in automobiles. This is the new innovative model mainly used for the vehicles to control the vehicle. In this project we design the automatic gear changing mechanism in two wheeler vehicles by using the electromagnet devices. This is very useful for the gear changing mechanism in automobile vehicles. By using this we can easily control the vehicle and improve the performance of the vehicle also we can avoid the wear and tear of the gear.

	<p><b>TITLE – DEVELOPMENT OF HYBRID BIKE ( TAE 004 )</b></p> <p>The concern over the environment with respect to pollution, conservation of fuel resources in the world, the automotive industry has entered into a new dimension in production of more fuel efficient, low emission vehicles and new technologies. One of the greatest innovations is Hybrid Electric Vehicle (HEV). The hybrid electric vehicle consists of two or more energy sources for total propulsion of the vehicle. In this paper, two independent propulsions, ICE and electric motor are independently operated for combined effort derivation in total propulsion of the vehicle. The Combined effort of ICE and Electric motor in propelling the vehicle more suitable for country like India is being analyzed in this paper. The ICE will be active in initial pickup and electric motor acts as supportive propulsion driver. The test area chosen is Mysore City, India in deriving the driving cycle.</p>
	<p><b>TITLE - DEVELOPMENT OF HEAD LIGH MOVEMENT WITH STEERING MECHANISM ( TAE 005 )</b></p> <ul style="list-style-type: none"> <li>• A four wheeler usually find difficulty to drive especially at sharp turn .The model helps them to change the focus of headlight as the steering move on either direction. Adaptive headlights react to the steering system of the car and automatically adjust to illuminate the road wheel. When the car turns right, the headlight angles to the right. Turn the car left ,the headlights angles to the left.</li> <li>• Instead of moving the headlights, reflectors are fitted on the inside on either side of the headlamp casing. These reflectors are moved to direct a beam in the same direction as the movement of the vehicle .The power required to move the reflectors is transmitted using hydraulic linkages.</li> </ul>

**TITLE – INTELLIGENT REVERSE BRAKING SYSTEM ( TAE 006 )**

The aim is to design and develop a control system based on intelligent electronically controlled automotive braking system is called “INTELLIGENT REVERSE BRAKING SYSTEM”. Sensor Operated Pneumatic Brake consists of IR transmitter and Receiver circuit, Control Unit, Pneumatic breaking system. The IR sensor is used to detect the obstacle. There is any obstacle in the path, the IR sensor senses the obstacle and giving the control signal to the breaking system. The pneumatic breaking system is used to brake the system. So basically here the car brakes on its own by determining the distance from the object.

The IR TRANSMITTER circuit is to transmit the Infra-Red rays. If any obstacle is there in a path, the Infra-Red rays reflected. This reflected Infra-Red rays are received by the receiver circuit is called “IR RECEIVER”. The IR receiver circuit receives the reflected IR rays and giving the control signal to the control circuit. The control circuit is used to activate the solenoid valve.

**TITLE – DEVELOPMENT OF AUTOMATIC POWER WINDOW MECHANISM (TAE 007)**

We have seen how severe is bus disasters on fire, accident etc, to avoid casualties and human lives here we are proposing power window mechanism. On sensing any danger in the form of fire and smoke the window automatically will slide down making way for passenger way out from the vehicle. This cool device is the heart of a power-window system. The window lift on most cars uses a really neat linkage to lift the window glass while keeping it level. A small electric motor is attached to a worm gear and several other spur gears to create a large gear reduction, giving it enough torque to lift the window.

## **TITLE – DEVELOPMENT OF REGENERATIVE BRAKING SYSTEM – ELECTRIC (TAE 008)**

- As the basic law of Physics says 'energy can neither be created nor be destroyed it can only be converted from one form to another'. During huge amount of energy is lost to atmosphere as heat. It will be good if we could store this energy somehow which is otherwise getting wasted out and reuse it next time we started to accelerate. Regenerative braking refers to a system in which the kinetic energy of the vehicle is stored temporarily, as an accumulative energy, during deceleration, and is reused as kinetic energy during acceleration or running. Regenerative braking is a small, yet very important, step toward our eventual independence from fossil fuels. These kinds of brakes allow batteries to be used for longer periods of time without the need to be plugged into an external charger. These types of brakes also extend the driving range of fully electric vehicles. Regenerative braking is a way to extend range of the electric vehicles. In many hybrid vehicles cases, this system is also applied hybrid vehicles to improve fuel economy. A normal car is only about 20% efficient, meaning some 80% of the energy it expends is wasted as heat created by friction.
- Regenerative braking could reclaim as much as half of that wasted energy, which equates into more motion produced by the fuel we are paying for instead of using that fuel to create heat that is being dissipated uselessly into the environment.



	<p><b>TITLE - RFID BASED SPEED CONTROLLER ( TAE 009 )</b></p> <p>This project aims at automatically controlling the speed of vehicles at speed restricted areas such as schools, hospital zones, traffic signals etc. Nowadays the drivers drive vehicles at high speed even in speed limited areas without considering the safety of the public. The traffic police are not able to control them with full effect. Also it is not practical to monitor these areas throughout. This paper paves way for controlling the speed of the vehicles within certain limit in restricted zones without interruption of the drivers. An RFID is used for this purpose. The RFID reader is attached along with the vehicle and the RFID Tag with these Zones. These tags are programmed to send a coded signal when the reader comes in proximity. Whenever the vehicles enter into these zones their receivers will receive this code and the speed of the vehicles is controlled automatically with the help of the micro controller unit present inside the vehicle. The tags are placed at the beginning and the end of the regions for which the speed should be reduced.</p>
	<p><b>TITLE – DEVELOPMENT OF SOLAR SEGAWAY ( TAE 010 )</b></p> <p>In this project work, two wheeled and one small supporting wheel self-balancing as well as manually balancing Mechanical Segway vehicle is prepared which is also known as a personal transporter Segway. The system is able to operate in transporter mode and robotic mode. The first goal is to maintain stabilization in pitch dynamic. This project focuses on to manufactured Segway without using any type programming &amp; Sensors a state feedback to stabilize system on transporter mode. The system consist of forward and backward movement when the driver operating DPDT switch in transporter mode in order to stabilize body. Small wheel is used so that there is no need of gyroscope for balancing purpose. The aim of this project work is to build up at a very low cost, highly efficient rate and easy to handle and operating also. The tests are performed on mechanical Segway to confirm that Mechanical Segway operating very well and high efficient rate.</p>

	<p><b>TITLE – DEVELOPMENT OF WIND POWERED CAR ( TAE 011 )</b></p> <p>Due to scarcity of fossil fuel in future and its detrimental effect on the environment, an alternative energy has to be discovered. Wind power is clean and sustainable natural resources that has yet to be fully utilized in the automotive industry. Also the sun is probably the most important source of renewable energy available today. The hybrid system has been designed and installed to generate power which combines wind turbine and solar panel. The hybrid model system is renewable energy system, which helps conserve energy by reducing the use of fuel in vehicle. Hence developing a new method for the economical evaluation of Hybrid Systems for electricity production.</p> <p>Keywords- Scarcity, fossil fuel, environment, alternative energy, natural resources, renewable energy</p>
	<p><b>TITLE - COMPRESSED AIR VEHICLE ( TAE 012 )</b></p> <p>As the world is hard pressed with the energy and fuel crises, compounded by pollution of all kinds, any technologies that bring out the solutions to this problem is considered as a bounty. In one of such new technologies, is the development of a new engine called as compressed air engine which does not require any of the known fuels like diesel, petrol, CNG, LPG, hydrogen etc. this works using only compressed air.</p>
	<p><b>TITLE - DEVELOPMENT OF REGENERATIVE POWER RESTORING USING FLYWHEEL ( TAE 013 )</b></p> <p>Regenerative brake is an energy recovery mechanism which slows a vehicle by converting its kinetic energy into another form, which can be either used immediately or stored until needed. Thus, the generated electricity during the braking is fed back into the supply system.</p>

	<p><b>TITLE – FABRICATION OF 3 AXIS BULLOCK CART ( TAE 014 )</b></p> <p>Improved bullock carts will be durable (more than 25 years), which will provide better economy to the farmers or poor people for whom the bullock carts are meant for livelihood. Mechanism used in the project is as follows 1)Tilting The base of the bullock cart is rotated with the help of bevel gears and axle drive mechanism operated by the handle and lever. 2) Lifting The base of the bullock cart is lifted with the help of universal joint which is connected to lead screw which is operated by rotating the handling.</p>
	<p><b>TITLE – FABRICATION OF REMOTE CONTROLLED WHEEL CHAIR CUM BED ( TAE 015 )</b></p> <p>The number of patients in India is increasing day by day. So in hospitals patients need to be shifted from wheelchair to stretcher, stretcher to beds, bed to wheelchair, or vice versa; which creates unsafe conditions for patients. Also transferring the patients from wheelchair to stretcher, stretcher to beds, bed to wheelchair is always an issue for the attendant or nurse.</p> <p>We will be using mild steel frames, dc motors, shafts and wheels .</p>
	<p><b>TITLE - FABRICATION OF AUTOMATIC MATERIAL HANDLING ROBOT (AGV) ( TAE 016 )</b></p> <p>An automated guided vehicle or automatic guided vehicle (AGV) is a mobile robot that follows markers or wires in the floor, or uses vision, magnets, or lasers for navigation. They are most often used in industrial applications to move materials around a manufacturing facility or warehouse.</p>

**TITLE - DEVELOPMENT OF AUTOMATIC PNEUMATIC BUMPER AND BRAKE ACTUATION BEFORE COLLISION ( TAE 017 )**

The aim is to design and develop a control system based intelligent electronically controlled automotive bumper activation and automatic braking system is called AUTOMATIC PNEUMATIC BUMPER AND BREAK ACTUATION BEFORE COLLISION. This project consists of IR transmitter and Receiver circuit, Control Unit, Pneumatic bumper system and pneumatic braking system.

**TITLE – AUTOMATIC TIRE INFLATION SYSTEM ( TAE 018 )**

The main aim of our project is to develop a “automatic tyre inflation and deflation system” .this can be placed in all automobiles while long drives and that can be utilized while climbing uphill or down hills. it is very necessary for the every automobile to be cautious while driving through long distances. so we have fabricated this machine to fill the air automatically by using control units. in this project main function is suddenly the air is decreased to the automobile vehicles the sensor signal alerted to the person when the use of air tank to fill the air in the tyre. then the air pressure is increased to the tyre in the vehicle it is same as the process of indicating the sensor signal through the person when the use of solenoid valve to reduce the excess air in the tyre.

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