

Developing A Vehicle - Based On Bicycle Dynamic Energy

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Abstract:- There are so many vehicles that came to influence in the existing world. Their operating systems are based on usual fossil fuels system. At the present sense the fossil fuel can exceed only for a certain period after that we have to go for a change to other methods. Thus we have made an attempt to design and fabricate an ultimate system (solar cycle) which would produce cheaper and effective result than the existing system. This will be very useful needs of the world. An attempt is made in the fabrication of solar powered system for a two-wheeler. The drive system of the normal cycle is not altered. This system is two in one system. The cycle is operated either by pedaling manually battery and motor driving mechanism.

Index Term: Dynamo, Throttle, Pedaling, Battery, Sprocket

I. Introduction:-

All vehicles that are in the market cause pollution and the fuel cost is also increasing day by day. In order to compensate the fluctuating fuel cost and reducing the pollution a good remedy is needed i.e. our transporting system. Due to ignition of hydrocarbon fuels, in the vehicle, sometime difficulties such as wear and tear may be high and more attention is needed for proper maintenance. Our vehicle is easy to handle and no fuel cost to the other existing alternative system which can produce higher efficiency at minimum cost was through about an attempt has been made to design and fabricate such an alternative system.

So this project, electric vehicle with dynamo is very much useful, since it is provided with good quality of power sources and simple operating mechanism. Hence each and every drop of fuel saves our economy and meet the needs is the saturation point we have to save and seek for some other source of power. This power, the alternate power must be much more convenient in availability and usage.

The next important reason for the search of effective, unadulterated power are to be save the surrounding environment including men, machine and materials of both the existing and the next forth generation form pollution, the cause for many harmful happenings and to reach the saturation point.

The most talented power against the natural resources is supposed to be the electric and solar energies that best suites the automobiles. The unadulterated zero emission electrical and solar power is the only easily attainable alternate source. Hence we decided to incorporate the electrical power in field of automobile, the concept of many multinational companies and to get relived from incorrigible air pollution. Tis implementation concept is tried to the best two-wheeler cycle. The various simple arrangements done for the good driving conditions of the battery powered cycle with its most needed specifications was summarized in this project.

II. Objectives:-

- we are fabricating with low-cost materials.
- To provide power supply to charge battery-operated gadgets like mobile phones, lamps, radio, communication devices etc.
- By using pedal power energy we generate electric energy, and thus we run the bicycle by using electric power.

III. Methodology:-

- when a person pedals the prime mover(bicycle). The mover gets movement, and also the rear wheel rotates. The rotation of rear wheel is merely dependent on the pedaling.
- Rear wheel is linked to DC motor also rotates and the mechanical energy produced through pedaling is converted to electrical energy.
- Then the produced electric energy is stored in the battery.
- From battery it is alternatively connected to a motor which is adjacent to the rear wheel and the throttle fixed to the handle. Here speed is adjusted by throttling.

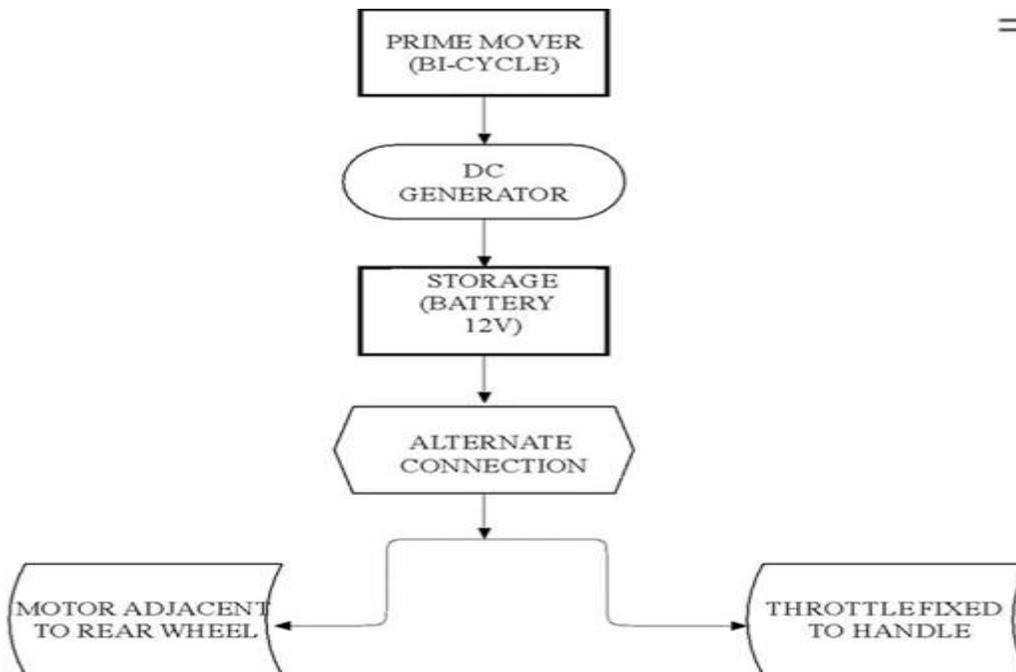
Block Diagram:-

Fig: 1 – Flow Chart

Designing:- The designing of cycle was done using CATIA V5 and design model was shown below.

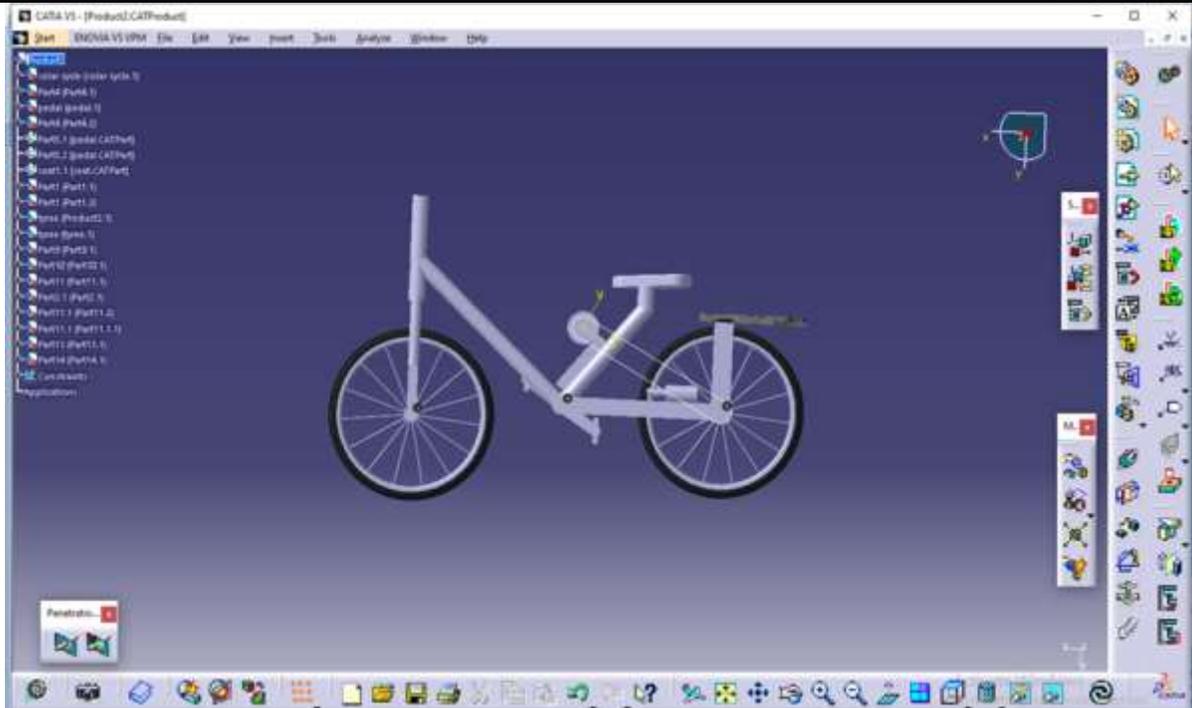


Fig:2. shows front view of model

Working Principle:-

- This cycle dynamo is a two in one system. It is operating both the condition. They are by using normal pedaling and by using battery-motor drive arrangement.
- The working principle of system starts with battery connections, in battery there are two terminals.
- The battery is charged by using dynamo. One is positive terminal and the other is negative terminal.
- The wire connections were made for the flow of electrons from one part to the other part.
- When the motor energises through the current, the stator field coil gets magnetised and induces the rotor shaft to rotate in counter clock wise direction.
- At the end, the motor shaft relevant conditions were made for the seating of the sprocket assembly.
- Sprocket chain arrangement is a power transmission device. Which gives drive to the rear wheel.

Materials used:-

- **BLDC dynamo**
- **Throttle**
- **Battery**
- **Controller**
- **Chain sprocket**
- **E-bike motor**
- **Cycle**

IV. Results & Discussions:-

- Battery power cycle mainly drives in single stages to fulfill the purpose of the vehicle to attain positive motion. The stage has a motor, battery and the sprocket chain assembly. With the help of the additional sprocket assembly, the back wheel drive is attained with the help of motor drive. The sprocket assembly set up is mounted on the rotor shaft. The chain and the sprockets are connected for the speed reduction, from the available medium sized motor. For easier and smoother movement's suitable arrangement are fixed at the necessary parts.
- The motor is fixed rigidly at the cycle of frame in position by clamping with bolts and the nuts. The output shaft of the motor in turn is connected with the sprocket assembly. Another sprocket is attached to the rear wheel for its motion. The sprocket is connected to another sprocket through chain. The wheel rotates in positive direction as the chain transmits the power to the rear wheel.

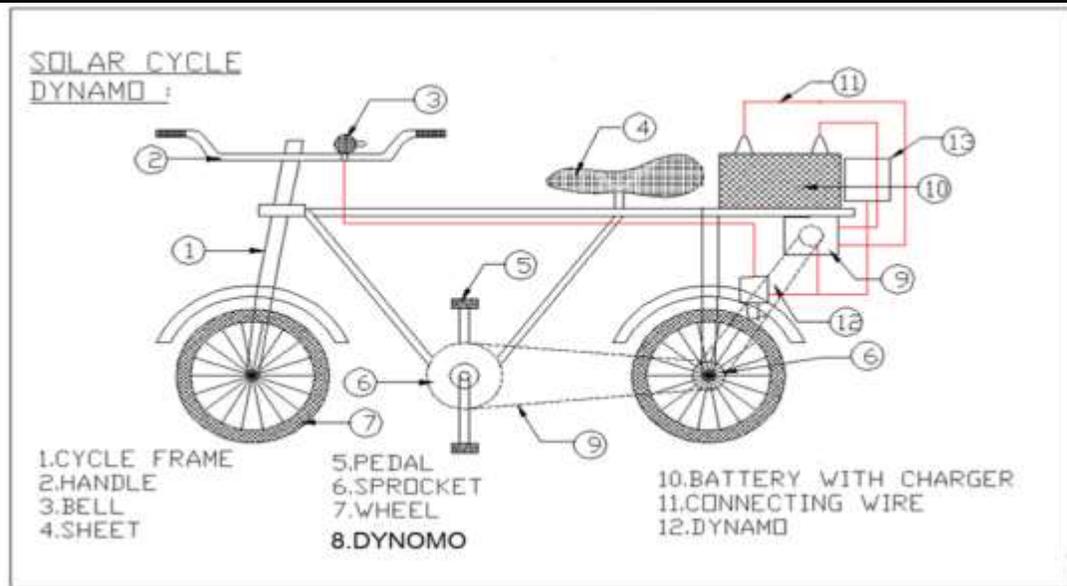


Fig-3. shows design of cycle



Fig.4 shows fabrication of cycle

- Energy used to drive the vehicle is clean energy.
- User will be fit, as he pedals the cycle.
- Generated energy can be used for multiple purposes.
- Fabrication is easier. And its user friendly.

V. Conclusion:-

- This project 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 good solution to bridge the gates between institution and industries.
- We are proud that we have completed our work with the limited time successfully. The electrical cycle with the dynamo is working with satisfactory conditions. We are able to understand the difficulties in maintaining tolerance and also quality. We have done to our ability and skill maintaining 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 electric cycle with dynamo which helps to know how to achieve simple motor and chain sprocket mechanism. The application of this cycle is high when compared to the cost of machine.by using some techniques, they can be modified and developed according to the applications.

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