

Lectro E-Bike

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Abstract: The primary objective of the project is to design a feasible yet highly adaptable Lectro E-bike. As the number of motor vehicles on the roads throughout the world increases at staggering rate each year, the dependence on oil-based fuel grows almost unchecked. The increased use of non-renewable fossil fuels brings with it environmental problems such as: The “greenhouse effect”, health problems for city dwellers and concern over the stability of fuel supply. To move away from this dependence on oil, a vast amount of money is being spent on the development of electrical vehicles (EVs) that may be produced. This Project a study of Lectro e-bike design. The aim of this study is to investigate how to design a simple, cost effective model of Lectro e-bike with intelligent control system. This can be implemented by removing the internal combustion engine, the exhaust system and other unnecessary components from the motorcycle and replaced by an electrical motor, an intelligent controller, and a battery pack, cabling system and monitoring instruments. In this project the Two Wheeler bike (Bicycle) speed is used to generate the electricity which can be stored in the battery for further use. The self-power generating vehicle is the new innovative one which is going to replace during power cut period. The power generated from the synchronized dynamo is stored in the battery which is given to inverter circuit Utilized in AC low power Applications. Power Utilization from battery usage only applicable for the failure of power supply in return to a battery used from grid line power. Hence this system will enhance the features and more useful for lectro e-bike.

Keywords: E-Bike, Cost effective, High Performance, Lectro

INTRODUCTION

A Lectro e-bike uses an electric motor for the purpose of moving. On the bicycle, people do not have to use their muscular force to move. It uses electrical energy for motion. They are also known as electric bike. There are many varieties of electric bike. Some of these bikes have a rechargeable battery. This makes it easy to power the bike whenever you want. They make use of stored electrical energy in some or the other form. Due to this form of energy, the bikes have more power and speed. These bikes are more convenient than regular ones. The electric bicycle is an electrical-assisted device that is designed the electromagnetic propulsions to an existing bicycle therefore relieving the user of producing the energy required to run the bicycle. It contains a strong motor and enough battery power that just requires charging to help in hill climbing, generate greater motoring speeds and provide completely free electric transportation. Electric vehicles cost more and perform worse than their gasoline counterparts. The reason is that mainly because gasoline cars have benefited from a century of intensive development: electric cars have been virtually ignored for several years. Even today, gasoline cars profit from billions of dollars of research every year while electric vehicles receive a tiny fraction of that amount of money. The primary premise for the Universities support of the electric-powered over the petrol powered has been towards improving air quality, though air quality alone is not a sufficient justification to mandate electric bicycles. The single biggest advantage of electric bicycle is that it is cost effective as it mainly only entails construction cost as running cost would only require the charging of the battery. An Electric bicycle would. However offer other strong benefits that are ignored by the marketplace. These include the dramatic reduction in oil consumption that its widespread use would bring about. Much less oil would be needed because only a tiny proportion of electricity is generated from oil. The other major non-market benefit would be lower greenhouse gas emissions.

1. PURPOSE

Economic conditions around the world have been very encouraging. Global growth which as 4.8% in 2005 reached 4.9% in 2006 and is expected to hover around this level in the current year also. While the Chinese economy is growing at around 10% without any signs of slow down, the Indian economy is also continuing to grow at more than 8%. In the coming years, I am expecting that the Indian economy will be booming owing to the heavy demand on infrastructure. Energy sector is growing by leaps and bounds as it is receiving the highest attention of both the State Governments and Central Government. India has moved from an agrarian economy to a manufacturing economy. The manufacturing sector now contributes around one-fourth of the total GDP and the industrial output has now crossed USD 65 Billion in value. Global steel production is continuing its growth and the production in 2006 crossed 1.2 billion ton mark. In spite of some control measures adopted by Chinese Government the crude steel registered an impressive growth and has crossed 450 million tons.

EXISTING SYSTEM

Transportation sector which consumes a large share of energy resource of the country also contributes significantly towards pollution. We at Electroterm have made it our mission to provide vehicles which are emission free, which do not use petroleum products and which are inexpensive to acquire and operate. Our launch of battery operated YoBykes has been highly successful and Electrotherm is now developing several new vehicles for the Indian market. Our launch in India has developed interest for our vehicles for international market also and in the future we will be exporting these vehicles to other countries. Electrotherm will continue to provide leadership in this segment delivering innovative, cost effective, practical and environmental friendly electric vehicles.

1. DRAWBACKS OF EXISTING SYSTEM

- **Less User Friendly:** The existing system is not user friendly because the retrieval of day-to-day activities data/records is very slow and records are not maintained efficiently and effectively.
- **Complex for generating the report:** We require more calculations and efforts to generate the report so it is generated at the end of the session. And the student does not get a chance to improve their attendance.
- **Lengthy time:** Every work is done manually so we cannot generate report in the middle of the session or as per the requirement because it is very time consuming.

2. PROPOSED SYSTEM

- Detect Food Calories , Show output to user
- Proper alert system to the user
- Notification to Mobile application
- Automatic scan as well as typing features.

Clarified that Electric bicycles are progressively regular in China however are moderately uncommon in the United States. The meetings uncovered a few conceivable statistic markets for e-bicycles that could extend the bicycling populace: ladies, more established grown-ups, and individuals with physical impediments. Proprietors of e-bicycles noticed their capacity to travel longer separations and over slopes without any difficulty and to touch base at a goal, for example, work, less damp with sweat and less drained than a customary bike would permit. These highlights may beat a portion of the regular hindrances to bicycling for all socioeconomics. The vast majority of the talked with e-bicycle proprietors utilized their e-bicycles to substitute for movement by either human-fuelled bikes or customary engine vehicles. Thusly, the e-bicycle can address worries about medical issues identified with inertia, contamination, and other open strategy issues to which private vehicles contribute. Further research is expected to decide if explicit approaches are expected to expand reception of e-bicycles. The potential for strife between riders of e-bicycles and of standard bicycles due to speed differentials is a worry. Regardless of whether speed differentials will represent a noteworthy issue will depend not just on the degree of selection of e-bicycles however the qualities of the riders.

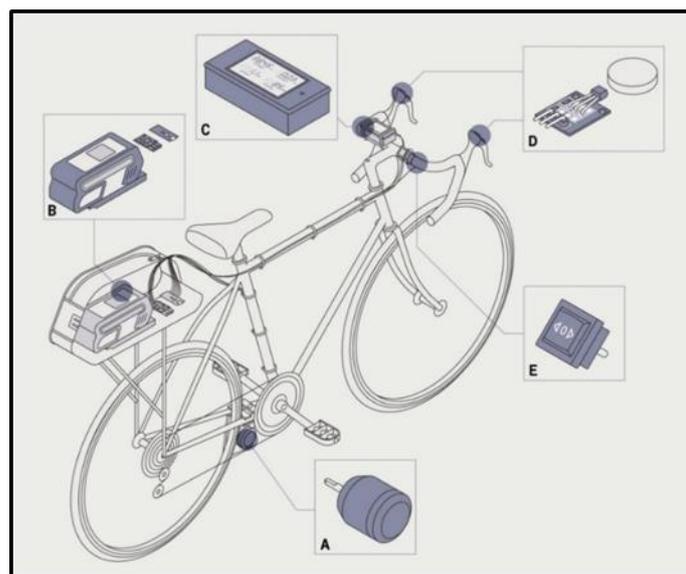


Fig -1: Diagram

This simple Lectro e-bike conversion involves just a few basic components:

1. A brushless motor mounted under the chainstays.
2. A lithium-ion battery pack, electronic speed controller, and Arduino, housed in a normal trunk bag.
3. A Drok meter.
4. A two Hall-effect sensors.
5. A momentary rocker switch, all mounted to the handlebars.

ADVANTAGES

- Simplicity in operation,
- Alternate resource for transportation.
- Effective speed control,
- Embedded on an existing bicycle,
- Reasonable power transmission efficiency,
- To reduce work load,
- Maintenance is low,
- Reduce power supply and motor cost

- Control environmental pollution.

APPLICATION:

1. Education.
2. Research.
3. Organizations.

METHODOLOGY

The single problem can be solved by different solutions. This considers the performance parameters for each approach. Thus considers the efficiency issues:

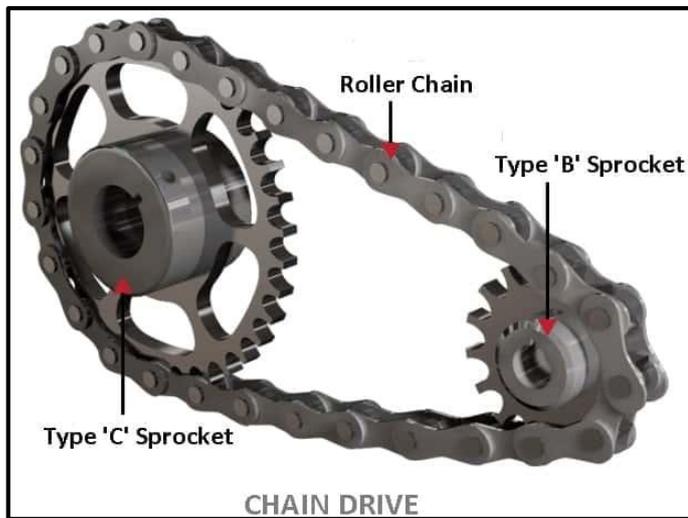
1. Problem Solving Methods are concerned with efficient realization of functionality. This is an important characteristics of Problem Solving Methods and should be deal with it explicitly.
2. Problem Solving Methods achieve this efficiency by making assumptions about resources provided by their context (such as domain knowledge) and by assumptions about the precise definition of the task. It is important to make these assumptions explicit as it give the reason about Problem Solving Methods
3. The process of constructing Problem Solving Methods is assumption-based. During this process assumptions are added that facilitate efficient ope rationalization of the desired functionality

COMPONENTS

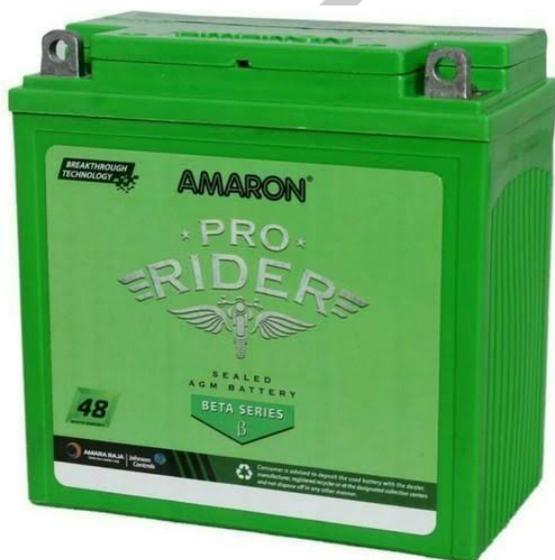
The Frame is made up of M.S. along with some additional light weight components. The frame is designed in such a way that it can sustain the weight of the person driving the unit, the weight of load to be conveyed and also to hold the accessories like motor. Also it should be designed to bear and overcome stresses which may arise able to due to different driving and braking torques and impact loading across the obstacles. It is drilled and tapped enough to hold the support plate



A sprocket, sprocket-wheel or chain wheel is a profiled wheel with teeth that mesh with a chain, track or other perforated or indented material. The name 'sprocket' applies generally to any wheel upon which radial projections engage a chain passing over it. The chain engaging with the sprocket converts rotational power in to rotary power and vice versa. Sprockets which look like a gear may differ in three aspects • Sprockets have many engaging teeth but gears have only one or two. • Teeth of the gear touch and slip against each other but there is basically no slippage in case of sprocket • The teeth shapes are different in gears and sprockets



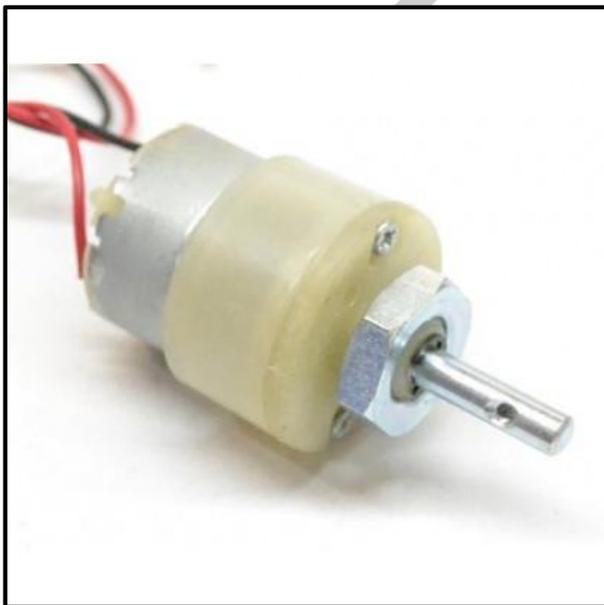
The Chain is an array of links held together with each other with the help of steel pins. This type of arrangement makes the chain more enduring, long lasting and better way of transmitting rotary motion from one gear to another. The advantage of chain drive over traditional gear is that, the chain drive can transmit rotary motion with the help of two gears and a chain over a distance whereas in traditional many gears must be arranged in a mesh in order to transmit motion



A battery is a source of electric power consisting of one or more electrochemical cells with external connections for powering electrical devices such as flashlights, mobile phones, and electric cars. Absorbed Glass Mat batteries are constructed differently than the traditional flooded battery. This write-up covers mainly the Concorde Sun-Xtender AGM's, but also applies to most other brands of deep cycle AGM batteries. In AGM batteries (also called starved electrolyte), there is a thin ultra-fine fiberglass mat sandwiched between the plates that are saturated with battery acid to about 95% of what they can hold. This mat is then packed in between the plates and slightly compressed, then welded/soldered in place. Because the plates and mats are packed fairly tight, they are almost immune to vibration



An electric motor is an electrical machine that converts electrical energy into mechanical energy. Most electric motors operate through the interaction between the motor's magnetic field and electric current in a wire winding to generate force in the form of torque applied on the motor's shaft. Electric motors can be powered by direct current (DC) sources, such as from batteries, or rectifiers, or by alternating current (AC) sources, such as a power grid, inverters or electrical generators. An electric generator is mechanically identical to an electric motor, but operates with a reversed flow of power, converting mechanical energy into electrical energy



A dynamo is an electrical generator that creates direct current using a commutator. Dynamos were the first electrical generators capable of delivering power for industry, and the foundation upon which many other later electric-power conversion devices were based, including the electric motor, the alternating-current alternator, and the rotary converter



The full twist throttles antithesis of thumb throttles as they are the largest type of bike throttle and require the whole hand to operate. The full twist throttle takes up the entire end of the handlebar, to operate it, the rider simply grabs a handful of throttle and twist it back towards himself. We preferred full twist throttle because they are operated by the full hand all five-finger grip that rider. And use your wrist to accelerate



It is not a simple Braking System, It is a Power Braking System Where the Motor Stop to Rotating Immediately While the Power Brakes Are Pressed. In This Braking System The Brakes Are Applied When The Brake Are Pressed. It Is stopping cycle 2 ways, 1st it is pressed the brake shoes in the rim if the will and 2nd it is stop to Rotate a Motor Suddenly When Applied Brakes. This Concept Are More Secure, Reliable, And Fast This Concept Introduced in Chania. This Brakes Are Used only Electric Bicycle. This Brakes Are More Useful in Traffic Condition

5. CONCLUSION

With the increasing consumption of natural resources of petrol, diesel it is necessary to shift our way towards alternate resources like the Electric bike, Lectro E-bike and others because it is necessary to identify new way of transport. Lectro E-bike is a modification of the existing cycle by using dynamo provided, that would sum up to increase in energy production. Since it is energy efficient, this bike is cheaper and affordable to anyone. It can be used for shorter distances by people of any age. It can be contrived throughout the year. The most vital feature of this bike is that it does not consume fossil fuels thereby saving crores of foreign currencies. The second most important feature is it is pollution free, eco – friendly and noiseless in operation. For offsetting environmental pollution using of on – board Lectro E-bike is the most viable solution. It can be charged with the help of AC adapter if there is an emergency. An Operating cost per/km is very less and with the help of a dynamo it can be lessen up more. Since it has fewer components it can be easily dismantled to small components, thus requiring less maintenance...

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