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DESIGN & DEVELOPMENT OF ELECTRIC VEHICLE FABRICATION AND MOTOR SELECTION

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Abstract –

In today's life vehicles are important factor. But due to environmental impact there is limitation of utilization of conventional vehicle. Places like airport, hospital, college campus gasoline vehicles are ban because of pollution. We observe the difficulties of old people, physical handicap and patients in public places. To avoid such problem electrical vehicle play important role. Generally we preferred electric cars which is driven by battery powered electric motor. Those vehicle are manufactured for above concern. The numbers of electric vehicles are increasing day by day because of environmental concern and high gasoline price. In this paper we focus on electrical tri wheeler. For this tri wheeler 48V li-on battery is used and it is driven by BLDC motor. we found about structural designing and fabrication of electrical tri-wheeler. The number of electrical vehicles (EVs) on the road has increased in recent years, including battery-electric vehicles (BEV), hybrid-electric vehicles (HEV), plug-in hybrid-electric vehicles (PHEVs), and fuel-cell electric vehicles (FCEV). This mode of transportation is expected to eventually replace internal combustion engine (ICE) vehicles, based on current trends. Each key EV component integrates several technologies that are either currently in use or have the potential to become prominent in the future. Environmental, power systems, and other industries may be adversely affected by electric vehicles (EVs). With sufficient EV penetration, the current power system could be subjected to severe instabilities; nevertheless, with proper management and coordination, EVs can significantly contribute to the success of the smart grid concept. Moreover, EVs have the potential to significantly cut transportationrelated emissions of greenhouse gases. However, there are still considerable barriers that EVs must overcome before they can completely replace ICEs. The purpose of this study is to review all the relevant information available on EV architectures, battery energy sources, charging processes, and control approaches. Its goal is to provide a comprehensive overview of current EV technology.

Keywords: Chassis, BLDC motor, BLDC motor controller, Battery, Throttle, Brakes

1.INTRODUCTION

In our world the energy conservation and environmental protection are growing rapidly, this development is fulfilled by Electrical Vehicle technology. These vehicles are able to provide emission free environment in urban transportation. Even we can consider conservation in power plant emission which produce fuel for gasoline vehicle. The use of electrical vehicle automatically reduce global air pollution. There fore electrical vehicle creates good impact on transportation, environmental, economic aspects as well as give contribution in development of technology. There fore design and fabrication of electrical vehicle has become a major concern. Battery operated vehicle eliminate need of fuel and thus becomes economical. It gives silent operation which reduce noise pollution as well. As design of vehicle gives us idea about looks and geographical structure. This design will help us to construction and mounting of electrical component. Design is also important for weight calculation and other physical quantities like body shape structure and tire diameter. These quantities has effect on aerodynamic of vehicle. Calculation of many factors like battery rating, size of motor are made easy due to design. Places of sensors are easy to specify due to design.

It does not add to any of the haze that contributes to the city's highly filthy air. It's ideal for motorsports because of the instant torque. Because of its low infrared signature and low noise level, it is also beneficial in military applications. The power sector is undergoing a transition, with renewable energy sources gaining traction. Also being created is the next generation electrical grid, which is referred to as the "smart grid." EVs are seen as a key component of this new power system, which includes renewable energy sources and improved grid systems [2]–[4]. All of this has rekindled interest in and development of this mode of transportation. Using electric motors (EMs) in vehicles was first thought of soon after the motor was invented. In the late 1890s, 28% of all vehicles consisted of EVs, and they were often preferred over conventional internal combustion engine ICE vehicles [1]. However, with meager oil prices, ICE vehicles soon gained colossal momentum, conquering the market, and becoming much more advanced. Though EVs were forgotten, a chance for resurrection appeared: in 1996, General Motors launched a concept named EV1. Soon after, other leading car brands launched their own EVs, including Ford, Toyota, and Honda. Toyota's Prius was the first commercially successful HEV. It was released in Japan in 1997 [1]. discussed in section 5. The controlling

lgorithms also play a crucial part in EVs, and they will be discussed in section 6. Finally, part 7 will present the outcomes of this paper. The above topics have been discussed before in the relevant literature from different aspects. This study attempts to summarize relevant knowledge and illustrate the system 'The electric vehicles (EVs) offer a promising low-carbon solution to decarb on is transport sector 1 . However, the increasing production of EVs (above 5 million at 2020 in China) leads to significant.

2. LITERATURE REVIEW

[1] Afroz (2015) and his colleagues published a study to investigate how individual values and attitudes influence consumers' purchasing intentions for electric vehicles. Customers from Malaysia are the focus of the study. Individual consequences (ICNs), such as measures of convenience, product size range, and perceived utility, were found to be adversely connected to green purchasing intention in the study (PIN). While consumers consider fuel efficiency, consumption, and comfort of a car when making a purchasing decision, they may choose an electric vehicle if the manufacturer offers a battery recycling facility. PIN has no statistically meaningful link with ECN's environmental impacts.

[2] Craig Morton (2016) and co-authors observed the impact of consumer innovation as well as perceptions of electric vehicle functional capabilities on customer demand for electric vehicles in their study on consumer preferences for electric vehicles. The study proposes a framework for analyzing the impact of consumer innovation and attitudes on electric car functional qualities.

[3] Helmus (2016) explores result and performance metrics to aid policymakers in optimizing the rollout of charging infrastructure; enhancing the business case in his research is a key performance indicator of charging infrastructure. Performance measurement is essential for a successful charging infrastructure rollout and operation. This involves the development of key result indicators (KRIs) and key performance indicators (KPIs), which provide policymakers with data to use in their interactions with stakeholders and projects. To extract appropriate KPIs, a two-step technique was used: first, policymakers' stakeholders were analyzed (resulting in a set of objectives and result indicators), and then these objectives were translated into KPIs and intervention options.

[4] Karwa (2016) in his study comes up with the idea of educating the electric vehicle dealers and providing training. The hurdle to accept electric vehicle is to transfer knowledge from dealer to customer. The dealer sales staff is the main direct contact with the customer. The dealership personnel were able to better comprehend the value proposition of electric vehicles as a result of their regular use, and they were able to engage with potential customers. The service area and the front of the dealership should both have electrical infrastructure installed. Dealership staff should be trained on EVSEs on a regular basis. Multimedia tools and streamlined one-page sales papers that show EV fuel savings, local incentives, and advantages should be included in training.

[5] Nazneen (2018) and co-authors aimed to identify customer perceptions of EV benefits in terms of the environment, car cost, comfort, trust, technology, infrastructure, and social acceptance in their study. Consumers are fully aware of the benefits to the environment. More infrastructure facilities are needed by the government. Governments and manufacturers must invest to shape consumer perceptions and deliver the expected characteristics..

3. LIMITAIONS OF EXISTING SYSTEM

- Yet sentiment analysis has some limitations; a recent study showed that the aggregation of LIWC and VADER scores on Twitter and Facebook posts over the span of months are weakly correlated with trait emotionality and general emotion measures in questionnaires [1]
- In the working of sentiment analysis, due to the limitation of the sample, the result of the experiment may not be very scientific. To improve in future work, improvements should be made.[4]
- Emotion recognition has some limitations like dark lighting, different angles, and blocked areas.[5]
- The main limitation is to dealing with Multi Modality entails the use of multiple media such as audio and video in addition to text to enhance the accuracy of sentiment analyzers. [7]
- This study has a few limitations. Firstly, our analysis of the text is limited to the extraction of word frequency features, which have a very limited degree of representation of audio to text conversion information.[10]

4.CONCLUSION

The provided abstract discusses the importance of electric vehicles (EVs) in addressing environmental concerns and the increasing adoption of EVs, with a specific focus on an electrical tri-wheeler using a 48V li-on battery and a BLDC motor. The abstract also mentions the potential impact of EVs on various industries and their potential to reduce greenhouse gas emissions. The abstract concludes with the statement that there are still significant barriers to overcome before EVs can completely replace internal combustion engine (ICE) vehicles.

In summary, the abstract highlights the following key points:The significance of EVs in addressing environmental issues and reducing pollution, especially in places where conventional gasoline vehicles are banned.

The growing popularity of EVs due to environmental concerns and rising gasoline prices.

The focus on the design and fabrication of an electrical tri-wheeler using a 48V li-on battery and a BLDC motor.

The potential impact of EVs on power systems and other industries, emphasizing the need for proper management and coordination.

The potential for EVs to contribute to reducing transportation-related greenhouse gas emissions.

The acknowledgment that there are still obstacles and challenges that EVs must overcome to completely replace ICE vehicles.
The abstract sets the stage for further research and exploration of electric vehicles, their technologies, and the challenges they face in the transition to a more sustainable transportation system.

5. REFERENCES

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