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A NOVEL Method of Dynamic Wireless Charging Using Inductive Coupling

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ABSTRACT
The field of e-mobility is seeing a rapid technological evolution. For instance, the idea of dynamic wireless charging seeks to extend the driving range of cars while also reducing their battery capacity. When traveling on a highway or in an urban setting, they cross the road surface. Travel time is reduced while mileage and comfort are increased as a result of in-motion charging. The increased mileage also makes smaller Electric Vehicle (EV) batteries possible. But the dynamic charging procedure seriously affects the electricity grid. Dynamic wireless charging is a far more erratic process than static charging, which may last anywhere from a few seconds to many hours and effectively increase the battery life of the vehicles. In this paper, the method of Wireless charging of Electric Vehicle using the mutual Inductive Coupling method with an application of a transmitter and receiver system is formulated on the MATLAB simulation environment. It also focuses on the efficiency of the system subject to different factors.

KEYWORDS
Electric Vehicle (EV), Wireless Power Transfer (WPT), Dynamic Wireless Charging (DWC), Wireless charging System (WCS), Energy Storage System (ESS), Foreign, Object Detection (FOD)

1. INTRODUCTION

With the growth in population, combustion engines are being used more and more often, particularly in transportation. Using electric cars is a practical approach to solving this issue of EV's. Via employing wireless charging technology, it is going to be easier to charge these EVs [2]. Two coils are required for the execution of the charging system, one installed inside the EV (secondary coil/receiver coil) and the other located in the parking garage (primary coil/transmitter coil).[6]. To lessen extra strain on the EV, the side coil should be thin and light. [3]. One more significant viewpoint for planning an inductive way is the pay procedure as it builds the power. There are four Fundamental pay strategies and they are the terms "series-series," "series-parallel," "parallel-series," and "parallel series" (parallel parallel) [4]. The inductive coupling theory serves as the foundation for WPT [2]. Electric car wireless charging solutions work on the underlying physics of electromagnetic, where a magnetic field produced over time by a coil on the ground generates a voltage in a second coil on the vehicle [1]. The WPT charging system has to have a high coupling coefficient k and quality factor Q in order to increase efficiency[2].In this method, a main coil receives a sinusoidal current to create a changing magnetic field, which allows the secondary coil to gather energy via inductive coupling [2][3][6]. The transmitter (Tx) coil receives high frequency current generated by an inverter circuit, which produces a high frequency magnetic field [5]. The voltage is induced when this field passes through the receiver's (Rx) coil. This voltage is corrected before being transferred to the battery to charge it [4]. Resonant networks are linked to both the Tx and Rx coils to make up for the reactive power the coupled coil requires.

Tx and Rx coils must be positioned so that it shares the same center in order to get optimal magnetic coupling [6]. Kesler et.al. [1] has proposed that wireless charging is positioned to play a big part in the electrification of transportation. With the same efficiency and speed as conventional conductive AC chargers, wireless charging systems offer a comfortable hands-free way to charge electric cars. The technology is being standardized, which will guarantee system compatibility and provide drivers the option to charge at any wirelessly enabled parking place.

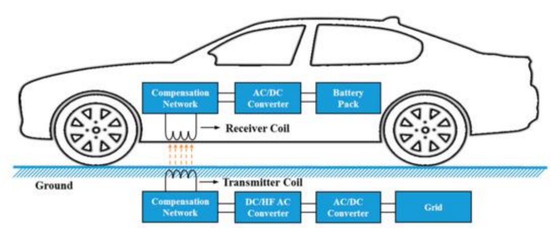


Fig. 1 Block Diagram of the Proposed System [6]

Ayisireet.al. [2] has proposed that the introduction of wireless charging technology was vital to address the problems associated with electric vehicles. In this article, electromagnetic resonance coupling is used to simulate the possibility of wireless power transfer for electric automobiles. Resonance-based wireless energy transmission is seen to provide the systems their highest value (96%). Jeong et.al. [3] has proposed that dynamic wireless charging (DWC) makes it possible for electric cars to automatically charge their batteries while driving. The DWC-EV system solves the drawbacks of battery technology, including its limited range of motion and lengthy recharging times. This essay looks at how the DWC's charging habits may affect battery life. Baroi et.al. [4] has proposed that the simulation findings validate the system's performance after a modeling system is created in

MATLAB/SIMULINK to test WCS using inductive coupling. The response (output) of the system is achieved in both loaded (with buck converter or load or both) and no loaded circumstances, and the whole simulation method for a WCS is explained (across the capacitor C2 without any buck converter and load). This topology for SS compensation is used. It has been noted that the output across capacitance C2 when there is no load is significantly greater than the output when there is a load. Amjad et.al. [5] has proposed that Electric cars require reliable, fast, and economical charging infrastructure in order to function efficiently. The analysis of a wireless charging technique for moving automobiles also includes an example model and the design requirements for a dynamic charging system. Wireless charging methods that are totally dynamic, semi-dynamic, or quasi-dynamic can all be employed for this. These wireless charging techniques for electric cars are covered in this article. Important parts of a wireless charging system, such as the charging pad, compensation topologies, system misalignment, communication, and control, are also researched and presented. Because batteries have an impact on a number of charging system components, a quick description of battery types and models is also provided. Nutwong et.al. [6] has proposed the method to determine the exact alignment of the transmitter and receiver coils used in wireless charging for electric vehicles. The use of a retro reflective photoelectric sensor can improve the precision and dependability of a traditional position detecting system. The system is run throughout operation at optimal efficiency thanks to the suggested way. To validate the suggested system, experimental measurements of system efficiency with and without the suggested approach are contrasted. This paper describes the method for detecting the aligned position of the transmitter and receiver coils used in wireless charging of electric automobiles. The experimental findings demonstrate that the suggested strategy can boost system efficiency. Tian et.al. [7] has proposed that the commercial use of wireless power transfer (WPT) technology for EV wireless charging is growing. (EV-WPT). Foreign object detection (FOD) is vitally needed in order to really utilize EV-WPT technology and ensure electromagnetic safety. Jie Shi et.al. [8] has proposed that Framework for integrating the WCS road system into a connected transportation power system in real time. To regulate ESS and cut expenses, a control technique based on Lyapunov optimization is adopted. Results were reduction in energy costs & pressure produced by load employing Novel wireless charging road network. The study was done to find an ESS for Wireless Charging Linkage. Xiao et.al. [9] has proposed that a small wireless charging lane prototype is built, and test findings reveal that a modified, scaled-down model vehicle, may move easily along the lane without any external power excitation thanks to the receiver coils that are attached to the bottom. This article describes a simple wireless charging lane prototype and shows through an experiment how this lane may provide EVs with a scaled-down wireless power transfer model, momentarily making the idea of charging-on-the-go a reality. Future work concentrates on wireless charging lane optimization due to low transmission efficiency. Liu et.al. [10] has proposed that dynamic wireless charging (DWC) enables EVS to wirelessly charge by travelling through coils buried in the ground. Deployment of WCLs will result in a significant change in the field of transportation systems management. DWC technology is currently in its early phases of development and has mostly been tested or fixed traffic routes. Mohamed et.al. [11] has proposed that most electric vehicle systems are built around a number of modules. Receiver coils have been added to the proposed system by giving a dynamic mathematical model that can define and measure source-to-vehicle power transmission even when it is in motion. The outcomes demonstrated the viability of the suggested model. In order to maximize the overall impact of electro-mobility on energy systems and vice versa, the integration of electric vehicles into the energy supply infrastructure must be viewed from a systematic point of view that considers all actors, including grid operators, infrastructure providers, and vehicle-charging stations.

Rest of this paper is organized as follows: Section 2 contains problem statement followed by proposed methodology in section 3. The next section showcases the results and conclusions.

2. PROBLEM STATEMENT

Electrical vehicles have been in the market for a long time for their environmental-friendly, resource-friendly, and abundant nature. The current setup involves using Lithium-ion or Nickel-Metal Hybrid batteries which need to be charged to an extent to provide power backup to the vehicle. Most of the EVs in the market today are Plug-In Hybrid Vehicles which require the vehicle to be plugged into a power source for a certain time to charge the battery. The various problems with the current setup can be further explained. Charging time in EV batteries is long, so the vehicle is on the stand for a long time. Minimizing the charging time would involve increasing the battery size, which would again increase the load and would be inefficient. Also, with the available charge the vehicle can travel only to a certain distance before it needs to be charged again. At the charging stations, this could lead to congestion. Heavy plugs and cables setup also lead to hassle in such areas. Therefore, a more reliable, quick, and affordable solution is needed for EV charging.

3. PROPOSED TECHNIQUE & RESULTS

According to the theory of magnetic induction, a receiving coil must be situated within of a magnetic field created by a transmitting coil in order to induce current in the coils. This usually leads to a small range since a magnetic field needs a certain amount of energy to convey. Due to its limitations for longer durations, the non-resonant technique consumes more energy while transmitting over greater distances. The resonance makes the receiving coil's ability to resonate at a compatible frequency possible, which significantly increases efficiency [2]. The method involves the secondary coils serving as the receiving pad, and the primary coils are employed as a transmitting pad underneath. When the electric car is parked in a fixed location, there is an electric power transmission from the pad put on the ground to the one installed on the car's chassis without any contact with the two pads. Resonant compensation facilitates efficient power transfer through tiny coupling and helps eliminate significant inductance leakage. When the coils of the transmitter and receiver are parallel, wireless power transmission takes place. The two types of resonance used are internal and stimulated resonance, which is controlled by the installed capacitance and self-inductance of the coils, and external and self-resonance, which is controlled by the self-inductance and self-inductance of the coils. At resonance, the reactance is equal to zero as in the equation below:

$$\frac{1}{\omega L_m} + \frac{2}{\omega(L - L_m) - \frac{1}{\omega C}} \tag{1}$$

$$\omega_m = \frac{\omega_o}{\sqrt{(1+K)}} = \frac{1}{(\sqrt{L + L_m}) + C} \tag{2}$$

$$\omega_e = \frac{\omega_o}{\sqrt{(1-K)}} = \frac{1}{(\sqrt{L - L_m}) + C} \tag{3}$$

$$K = \frac{L_m}{L} = \frac{w_e^2 - w_m^2}{w_e^2 + w_m^2} \tag{4}$$

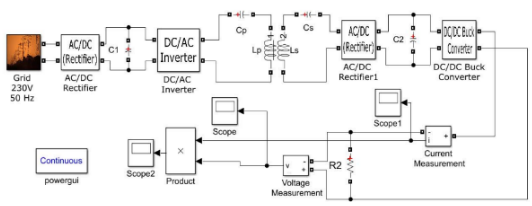


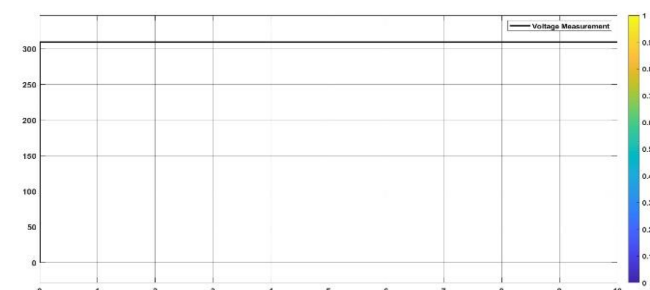
Fig. 2 MATLAB simulation Framework of WPT [4]

Table- 1: System Parameters

Parameters	Design Value
Input Voltage	220 V
L_p	15 mH
L_s	15 mH
M	7.5 mH
C_p	4.9 mF
C_s	4.9 mF
C_1	1000µF
C_2	1000 µF
K	0.4
R_1	0.0714 Ω
R_2	0.0714 Ω

The system is then designed according to the framework shown in fig. 2 using MATLAB/Simulink and the parameters shown in table 1.A system is designed based on the parameters taken for reference [4]. The results of the simulation are studied for further analysis.

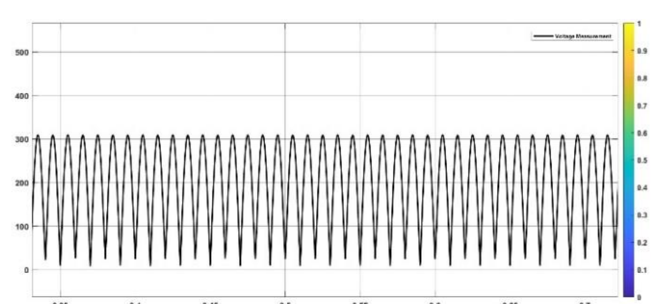
The output is first measured across the C2 capacitor in terms of voltage, current, and power as shown in Fig 2. without the buck converter or load. Next, the C2 capacitor is crossed with 100 resistors, and the output is once more noted. After connecting the buck converter and 100 resistors across the C2 capacitor, the output is then tested across 100 resistors. The buck converter aids in system output control, and by adjusting the buck converter's duty cycle, the output can be varied. The grid power is applied to the primary coil after being rectified and then inverted. After further rectifying, the secondary coil is where the output is obtained. The secondary rectifier is connected across by a resistance. The AC/DC Rectifier is a rectifier with a full bridge. In Fig. 2, two rectifiers are employed, and as they are identical, they are not displayed individually. The primary rectifier, which is linked to the grid, transforms grid power into pulse setting before electricity is sent to the inverter. The secondary rectifier feeds load while rectifying the secondary coil voltage. A complete bridge inverter built with IGBTs makes up the DC/AC inverter subsystem. Reversed signals from the grid are applied to the primary coil by the inverter, which receives rectified power from the grid. The inverter portion must function with two gate pulses. The step-down converter known as the buck converter works as part of the DC/DC Buck Converter subsystem to help regulate the output of the system by adjusting its duty cycle. A MOSFET is employed as a switch and a PWM generator provides the MOSFET with the necessary duty cycle. Here, the PWM generator's duty cycle input is held constant at 0. The buck converter's MOSFET receives the recorded gate pulse from a generator. A battery is typically utilized as a load rather than a resistor when a buck converter is employed. The battery will be charged mostly using the WCS. Consequently, the buck converter is a crucial component of the WCS. There won't be



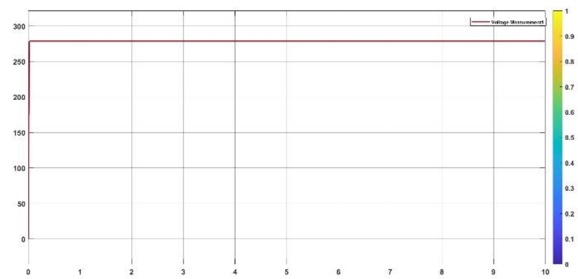
any control over the output waveforms without employing the buck converter.

Fig 3. Output of AC/DC Rectifier

Fig 4. The output of DC/AC Converter



In order to reduce increased power losses, a full wave bridge rectifier receives a 230 V AC supply before converting it to a 311 V DC supply which is shown in Fig 3. The capacitor with a capacitance 1000 μF filters the wave to give a constant voltage verses time graph. Fig 4. Shows 311 V DC supply when given to a MOSFET inverter, then it converts the DC supply to 311 AC using the Pulse width Modulation to be then fed to the coupler circuit or the transmitter coil for inductance in the receiver coil. After coupling. the induced AC Voltage of 250 V is then passed through a full wave bridge rectifier for conversion into DC as shown in Fig.5. Then it is a given to a buck Converter and output is obtained in Fig.6. Fig.7 shows an increase of 10% in the State of Charge starting from an initial 80% to 90 % in 100 seconds. As the battery is currently in the charging stage the current is negligible as there in Fig.8. According to Fig.8 a constant voltage of 50V is maintained in



the battery. As evident from the results the proposed system is properly functional. With resonant frequency 96% efficiency can be achieved. Consequently, magnetic resonance wireless charging is considered to be a productive way to charge an electric car. The output waveforms are shown to become smoother when the buck converter is used, which is particularly important for battery charging.

Fig. 5. Output from AC-DC Rectifier after coupling

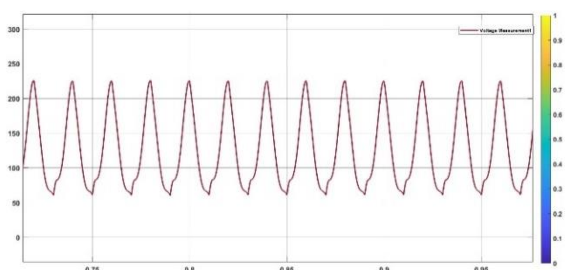
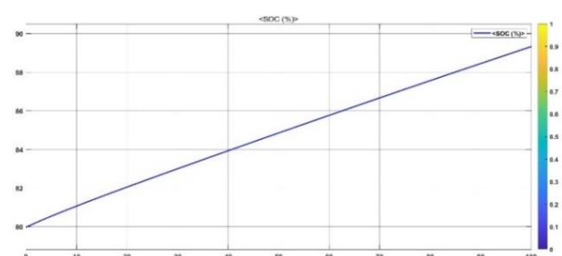


Fig.6. Output from DC-DC Buck Converter at load condition



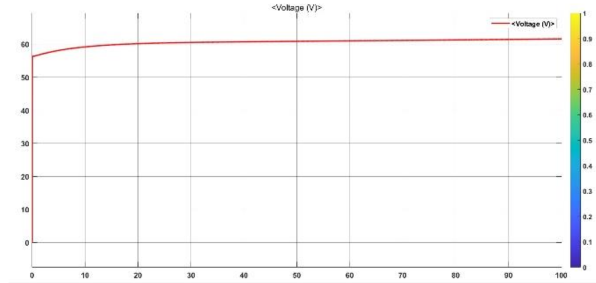


Fig 7. Output from the Battery-SOC

Fig 8. Output from the Battery-Current

Fig 9. Output from the Battery- Voltage

The efficiency can be increased by changing the coupling coefficient (k) of the system. To understand how changing the coupling factor can affect the charging time of EVs, it's important to first understand what a coupling factor is and how it relates to wireless charging. The coupling factor is a measure of how well the magnetic field created by the charging pad's coil is coupled to the coil in the EV. A higher coupling factor means that more of the magnetic field is being transferred to the EV, which leads to a more efficient transfer of power and faster charging times. The design of the charging pad and the EV's coil must be improved in order to make them better suited and have a greater coupling factor in order to reduce the charging time of EVs by altering the coupling factor. Some ways to achieve this could include: Increasing the alignment between the charging pad and the EV: A poorly aligned charging pad and EV will have a lower coupling factor, which will cause slower charging times. The coupling factor can be raised and charging periods shortened by better aligning the charging pad with the EV's coil [6]. The coupling factor and charging times may be increased by enlarging the coils in both the charging pad and the EV. Overall, improving the coupling factor can lead to faster charging times for EVs, but it's important to note that there are many other factors that can affect charging times, such as the capacity of the battery, the current being used to charge the battery, and the efficiency of the charging system. The relation between Coupling coefficient *(K)*, self-inductances ($L_1 \& L_2$) and Mutual inductance (*M*) is given by:

$$K = \frac{M}{\sqrt{L_1 . L_2}} \tag{5}$$

For a coupling coefficient of $K = 0.9$, following result was

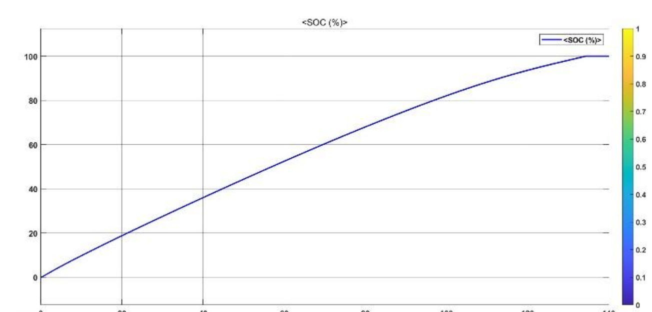


Fig 10. Improved Output from the battery- SOC

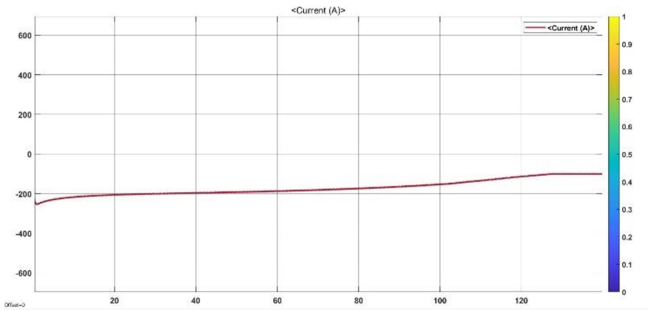


Fig 11. Improved Output from the Battery- Current

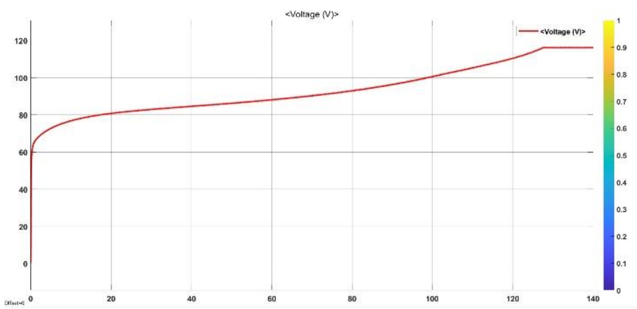


Fig 12. Improved Output from the Battery - Voltage

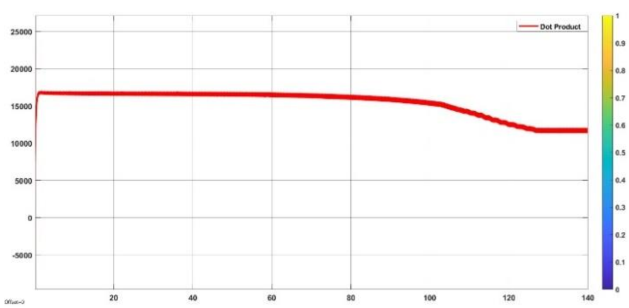


Fig 13. Final Power Output during Charging.

The above results are obtained in a time frame of 140 seconds which is the exact amount of time required for charging the battery from initial 0% to 100% with K=0.9 as seen in Fig 10. From Fig. 11, it is evident that the current fluctuates mostly maintains negligible value during charging and becomes constant after full charge is attained. Fig.12 shows gradual increase in voltage which becomes constant after 100% charge. Fig 13. gives the value of the power output which is around 16KW. Showing power curve while charging. So, the efficiency has increased and charging time has decreased by increasing the coupling coefficient.

4. CONCLUSIONS

This article plans and simulates a WCS that uses inductive coupling in a MATLAB/Simulink environment. The all-out reproduction approach for a WCS is shown, and both the stacked (with a load or a converter, or both) and unstacked conditions of the system's response (yield) are obtained. (with next to no buck converter and burden, straight forwardly across the capacitor C2). The SS pay geography is used in this instance. Both buck converter and burden are present in the yield waveforms. When the result is directly across the capacitor C2 (no heap condition), it is observed that the difference between the two results is significantly greater. It is evident that using the buck converter results in smoother waveforms, which is crucial for battery charging. The advantages and disadvantages of this WCS compared to the conductive charging framework are discussed in the preceding sections. It is also evident that efficiency may be greatly improved by making a few small changes to parameter values. Future research will be done to reduce the cost and power loss of the framework. The area also needs special management system for congestion management in the charging stations. A three-phase model for the same has to be devised. Work must be done on the commercialization and decentralized management system of charging which is in progress right now. Research are also being undertaken for integrating the system with Smart-Grid to use the process to its high potential. Also, various researches have to be undertaken to minimize the cost of technology used. The topic holds great research potential in future as constant updating is required in this field.

REFERENCES

1. M. Kesler, "Wireless Charging of Electric Vehicles," 2018 IEEE Wireless Power Transfer Conference (WPTC), 2018, pp. 1-4, doi: 10.1109/WPT.2018.8639303.
2. E. Ayisire, A. El-Shahat and A. Sharaf, "Magnetic Resonance Coupling Modelling for Electric Vehicles Wireless Charging," 2018 IEEE Global Humanitarian Technology Conference (GHTC), 2018, pp. 1-2, doi: 10.1109/GHTC.2018.8601806.
3. S. Jeong, Y. J. Jang, D. Kum and M. S. Lee, "Charging Automation for Electric Vehicles: Is a Smaller Battery Good for the Wireless Charging Electric Vehicles?" in IEEE Transactions on Automation Science and Engineering, vol. 16, no. 1, pp. 486-497, Jan. 2019, doi: 10.1109/TASE.2018.2827954.
4. S. Baroi, M. S. Islam and S. Baroi, "Design and Simulation of a Wireless Charging System for Electric Vehicles," 2017 2nd International Conference on Electrical & Electronic Engineering (ICEEE), Rajshahi, Bangladesh, 2017, pp. 1-4, doi: 10.1109/CEEE.2017.8412915.
5. Muhammad Amjad, Muhammad Farooq-i-Azam, Qiang Ni, Mianxiong Dong, Ejaz Ahmad Ansari, Wireless charging systems for electric vehicles, Renewable and Sustainable Energy Reviews, Volume 167, 2022, 112730, ISSN 1364-0321, https://doi.org/10.1016/j.rser.2022.112730
6. S. Nutwong, E. Mujjalinvimut, S. Maiket, T. Khemkhaeng and N. Wiraphonsawan, "Position Detection with Online Monitoring System for Wireless Charging of Electric Vehicles," 2021 9th International Electrical Engineering Congress (iEECON), Pattaya, Thailand, 2021, pp. 173-176, doi: 10.1109/iEECON51072.2021.9440303.
7. Yong Tian, Wenhui Guan, Guang Li, Kamyar MehranJindong Tian, Lijuan Xiang, A review on foreign object detection for magnetic coupling-based electric vehicle wireless charging, Green Energy and Intelligent Transportation, Volume 1, Issue 2,2022, 100007, ISSN 2773-1537, https://doi.org/10.1016/j.geits.2022.100007
8. Jie Shi, H. Oliver Gao, Efficient energy management of wireless charging roads with energy storage for coupled transportation–power systems, Applied Energy, Volume 323, 2022, 119619, ISSN 0306-2619, https://doi.org/10.1016/j.apenergy.2022.119619
9. J. Xiao, E. Cheng, N. Cheung, B. Zhang and J. F. Pan, "Study of wireless charging lane for electric vehicles," 2016 International Symposium on Electrical Engineering (ISEE), Hong Kong, China, 2016, pp. 1-4,doi: 10.1109/EENG.2016.7845989

10. Zhen Tan, Fan Liu, Hing Kai Chan, H. Oliver Gao, Transportation systems management considering dynamic wireless charging electric vehicles: Review and prospects, Transportation Research Part E: Logistics and Transportation Review, Volume 163, 2022, 102761, ISSN 1366-5545, https://doi.org/10.1016/j.tre.2022.102761.
11. Naoui Mohamed, FlahAymen, Mohammed Alqarni, Rania A. Turky, BasemAlamri, Ziad M. Ali, Shady H.E. Abdel Aleem, A new wireless charging system for electric vehicles using two receiver coils, Ain Shams Engineering Journal, Volume 13, Issue 2, 2022, 101569, ISSN 2090- 4479, https://doi.org/10.1016/j.asej.2021.08.012.
12. T. Theodoropoulos, Y. Damousis, A. Amditis, G. Karaseitanidis and P. Guglielmi, "Smart grid architectures for dynamic wireless EV charging," Mediterranean Conference on Power Generation, Transmission, Distribution and Energy Conversion (MedPower 2016), Belgrade, 2016, pp. 1-7, doi: 10.1049/cp.2016.1092.
13. L. Shuguang, Y. Zhenxing and L. Wenbin, "Design and Simulation of Coupling Coil for EV's Wireless Charging System," 2018 IEEE International Conference on Electronics and Communication Engineering (ICECE), Xi'an, China, 2018, pp. 115-119, doi: 10.1109/ICECOME.2018.8644810.
14. T. Jitson and S. Cheapanich, "Study of Dynamic Charging for Electric Vehicles Using Stationary Wireless Power Transfer Charging," 2021 9th International Electrical Engineering Congress (iEECON), Pattaya, Thailand, 2021, pp. 17-20, doi: 10.1109/iEECON51072.2021.9440310.
15. S. Ushkewar, G. B. Patil and V. Moyal, "Wireless Charging in a Dynamic Environment for Electric Vehicles," 2022 IEEE Bombay Section Signature Conference (IBSSC), Mumbai, India, 2022, pp. 1-5, doi: 10.1109/IBSSC56953.2022.10037388.
16. K. Deng, "Research on current control of MRC coupling electric vehicle wireless charging," 2022 9th International Forum on Electrical Engineering and Automation (IFEEA), Zhuhai, China, 2022, pp. 838-841, doi: 10.1109/IFEEA57288.2022.10038228.
17. N. Benalia, I. Benlaloui and K. Laroussi, "A Comparative Study and Parameters Analysis of Coils in Inductive Charging For Electric Vehicles," 2022 2nd International Conference on Advanced Electrical Engineering (ICAEE), Constantine, Algeria, 2022, pp. 1- 6, doi: 10.1109/ICAEE53772.2022.9962122.
18. M. Rahman, F. Rahman, A. H. M. Rasheduzzaman, M. F. Shahriyar and M. Tanseer Ali, "Magnetic Resonance Coupled Wireless Power Transfer Analysis For Electric Vehicle," 2021 3rd Global Power, Energy and Communication Conference (GPECOM), Antalya, Turkey, 2021, pp. 28-33, doi: 10.1109/GPECOM52585.2021.9587543.
19. A. G. Akhil et al., "Coupled Wireless Charging system for Electric Vehicles," 2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), Tirunelveli, India, 2021, pp. 475-479, doi: 10.1109/ICICV50876.2021.938845
20. Z. Bin and H. Xiao-hong, "Modeling and analysis of wireless power transmission system via strongly coupled magnetic resonances," 2014 International Conference on Mechatronics and Control (ICMC), Jinzhou, China, 2014, pp. 70-75, doi: 10.1109/ICMC.2014.7231519.
21. Q. Wang, W. Li, J. Kang and Y. Wang, "Electromagnetic safety of magnetic resonant wireless charging system in electric vehicles," 2017 IEEE PELS Workshop on Emerging Technologies: Wireless Power Transfer (WoW), Chongqing, China, 2017, pp. 1-4, doi: 10.1109/WoW.2017.7959402
22. K. Vidhya, C. Sharmeela, S. Balaji, S. Elango, P. Sanjeevikumar and M. S. Bhaskar, "Techno-Economic Aspects of the Wireless EV Charging System," IECON 2021 – 47th Annual Conference of the IEEE Industrial Electronics Society, Toronto, ON, Canada, 2021, pp. 1- 6, doi: 10.1109/IECON48115.2021.9589717.
23. Chirag Panchal, Sascha Stegen, Junwei Lu, Review of static and dynamic wireless electric vehicle charging system, Engineering Science and Technology, an International Journal, Volume 21, Issue 5, 2018, Pages 922-937, ISSN 2215-0986, https://doi.org/10.1016/j.jestch.2018.06.015.
24. Z. Danping, L. juan, C. Yuchun, L. Yuhang and C. Zhongjian, "Research on Electric Energy Metering and Charging System for Dynamic Wireless Charging of Electric Vehicle," 2019 4th International Conference on Intelligent Transportation Engineering (ICITE), 2019, pp. 252-255, doi: 10.1109/ICITE.2019.8880214.

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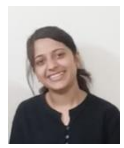

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