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(54) Title of the invention : A HYBRID RENEWABLE ENERGY DRIVEN BIDIRECTIONAL WIRELESS CHARGING SYSTEM FOR DYNAMIC AND STATIC ELECTRIC VEHICLE

(51) International classification :H02J0007020000, H02J0050120000, B60L0053120000, H02J0007000000, H02J0050100000 (86) International Application No :NA Filing Date :NA (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA	(71)Name of Applicant : 1)INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD Address of Applicant :Dhanbad -826004, Jharkhand, India DHANBAD ----- Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Pradip Kumar Sadhu Address of Applicant :Department of Electrical Engineering, INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD, Dhanbad -826004, Jharkhand, India DHANBAD ----- 2)Anik Goswami Address of Applicant :Department of Electrical Engineering, INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD, Dhanbad -826004, Jharkhand, India DHANBAD ----- 3)Sonal Mishra Address of Applicant :Department of Electrical Engineering, INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD, Dhanbad -826004, Jharkhand, India DHANBAD ----- 4)Nital Pal Address of Applicant :Department of Electrical Engineering, INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD, Dhanbad -826004, Jharkhand, India DHANBAD ----- 5)Arijit Baral Address of Applicant :Department of Electrical Engineering, INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD, Dhanbad -826004, Jharkhand, India DHANBAD ----- 6)Anirban Ghoshal Address of Applicant :Department of Electrical Engineering, INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD, Dhanbad -826004, Jharkhand, India DHANBAD ----- 7)Kartick Chandra Jana Address of Applicant :Department of Electrical Engineering, INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD, Dhanbad -826004, Jharkhand, India DHANBAD -----
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(57) Abstract :

The present invention relates to a hybrid renewable energy driven bidirectional wireless charging system (100) for dynamic and static electric vehicle (1). The proposed charging system (100) comprises a plurality of transmitting coil systems (3) mounted into a road lane (4) concrete at a regular interval in a segment of 1-10 km on which the electric vehicle (1) is in motion and a receiving coil system (2) mounted underneath the electric vehicle (1). The bidirectional wireless power transfer (WPT) compatible charging system (100) can transfer power from the renewable energy source (RES) (8) and the grid source (7), in absence of the RES (8), to the battery unit (5) of the vehicle (1) and the excess power therefrom when the battery unit (5) is fully charged. The segmental WPT road ensures to take decision by monitoring the irradiance level whether the power transfer is taking place in grid power-to-vehicle or vehicle-to-grid power mode. The charging system (100) enables charging electric vehicle (1) irrespective of their size and shape by the horizontal arrangement of number of receiving coil systems (2) and by the vertical arrangement of number of repeater coils (9) on vehicle side.

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