

Electric Automobile Charging System

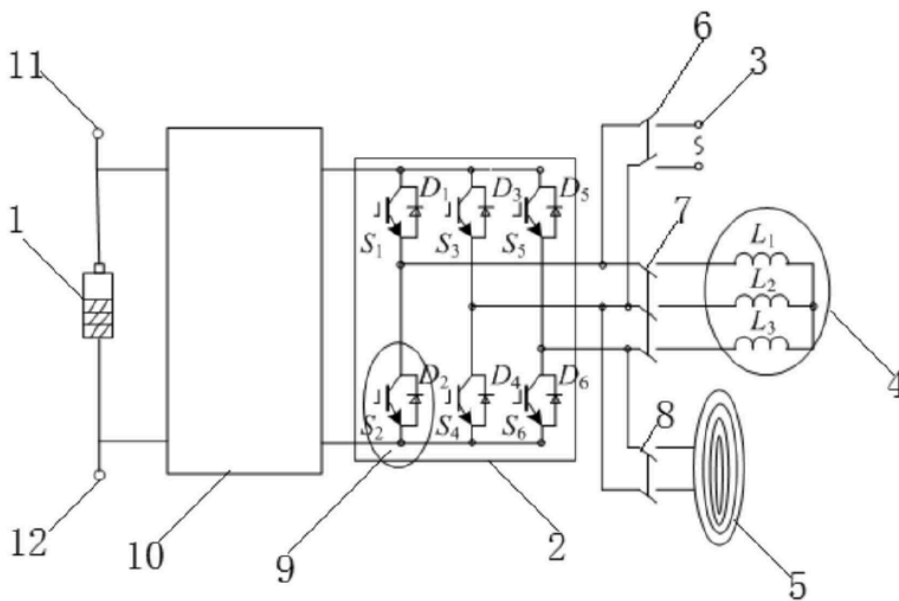
 Energy & Environment

 Manufacturing

Electricity and Power Electronics

Energy Conservation/Generation/Management/Storage (Battery)

Smart Mobility and Electric Vehicle



IP Status
Patent filed



Technology Readiness
Level (TRL) ?

2

Inventor(s)

Prof. LIU Chunhua

Mr. XIAO Yang

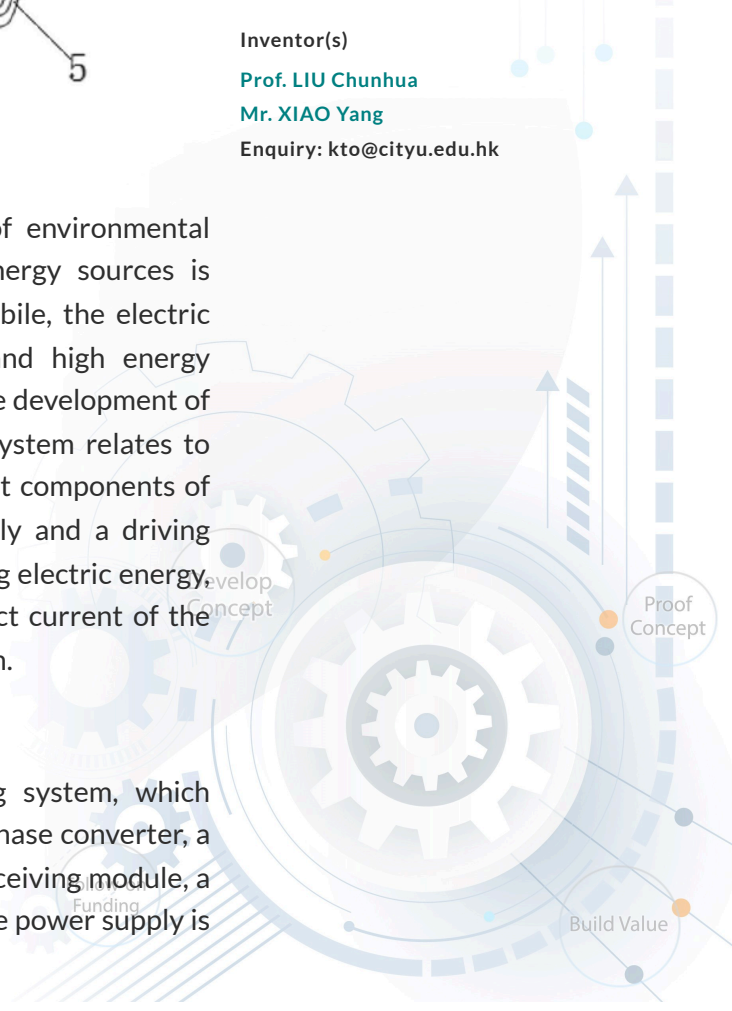
Enquiry: kto@cityu.edu.hk

Opportunity

With the decrease of fossil fuels and the aggravation of environmental problems, the global demand for clean and efficient energy sources is increasing. Compared with the traditional fuel oil automobile, the electric automobile has the characteristics of small emission and high energy conversion rate, and becomes an important direction for the development of the automobile industry. The electric automobile power system relates to the source of electric automobile power, and the important components of the electric automobile power system are a power supply and a driving motor inverter, wherein the power supply is used for storing electric energy, and the driving motor inverter is used for converting direct current of the power supply into alternating current to drive a motor to run.

Technology

The invention discloses an electric automobile charging system, which comprises: the system comprises a power supply, a three-phase converter, a single-phase power grid, a three-phase motor, a wireless receiving module, a first contactor, a second contactor and a third contactor. The power supply is



connected in parallel with the three-phase converter. The three-phase converter comprises three parallel-connected bridge arms, and each bridge arm comprises two power switches connected in series. And two ends of the first contactor are respectively connected with the middle points of two bridge arms of the single-phase power grid and the three-phase converter. And two ends of the second contactor are respectively connected with the three-phase motor and the middle points of three bridge arms of the three-phase converter. And two ends of the third contactor are respectively connected with the wireless receiving module and the middle points of two bridge arms of the three-phase converter. The invention has simple structure, can realize the charging of the power supply under various modes without using various devices, and has lower production cost.

Advantages

- Compared with the conventional vehicle inverter, the present invention can additionally provide the functions of V2G (power feedback mode), G2V (power charging mode) and wireless charging, thereby adapting to the future market.
- Compared with the traditional converter, the invention can realize multiple functions without adding additional power devices and has lower cost.
- The silicon carbide device with high performance and wide forbidden band is adopted, so that the size and the weight are smaller, more space can be provided for accommodating the battery pack, and the endurance mileage is enhanced.

Applications

- Charging System for Electric Vehicle or Apparatus

