Demonstration Project
integrating driverless technology with a road with solar energy and wireless charging/supply technologies

Haiyan Zheng
**Electronic Road**
- Total length: about 600m
- Width: 3.5m
- The installed capacity of the photovoltaic road: 240kWp
- The transmitting power of Dynamic Wireless Charging System: 30kW

**Distribution Room**
- Intelligent Control and Scheduling System
- Distribution Facility of DC 750V power

**Static Wireless Charging Carports**
- The transmitting power of Static Wireless Charging System is 30kW
Project Detail

Photovoltaic Road

Driverless car with level 4

Cross Section Structure of Electronic Road

- Photovoltaic Road
- Top Layer: thickness 70 AC-13C Fine particle modified asphalt concrete
- Glue Layer: SBS(1-D) Modifying agent 3%~4%
- The Following Layer: thickness 80 AC-20C Medium grained asphalt concrete
- Sub-seal Layer: Emulsified asphalt permeation layer with thickness 10, Sub-seal layer, glass fiber grid baspreader
- Base Layer: thickness 360 cement stabilized macadam, divided in two layers and compacted separately
- Reinforced fill
Intelligent Control and Scheduling System

- Monitoring of Traffic Flow
- Scheduling of Vehicles
- Monitoring of Accidents
- Control of Signals
- Control of Vehicles
- Environment Monitoring
- Control of WPT
- Control of Driverless Technology
- Control of Road with Photovoltaic System
- Comprehensive evaluation analysis
- Smart Transportation
Project Features

01 Efficient Wireless Charging: When the power level of dynamic wireless charging system is 30kW, the efficiency of power transfer is close to 90%.

02 Driverless Technology: Driverless vehicle at the level 4 is equipped with vehicle-mounted wireless charging module.

03 Seamless switching in dynamic wireless charging system: The power loss and the spread of radiation are reduced, the electromagnetic radiation is well below the international standard limit.

04 New type of pavement: The transparent concrete made of a flexible material can bear a weight more than 50 tons and the attenuation of transfer power is lower than 15%.

05 Smart Transportation: Intelligent roadside facilities, LED road traffic elements, multi-function street lamp, Intelligent traffic control system.

Project investment
€ ≈ 8,000,000
By designing the bidirectional power flow circuit, the electric vehicle will be charged wirelessly when the loads are light, in addition to that, the battery pack of electric vehicle will realize power feedback to relieve the pressure of power network when the loads outweigh. So this system can play a role of peak shaving and valley filling.
Thank you