AI technology for online ridesharing

CSIC has developed an AI technology for the implementation of a smart ridesharing platform at a city-wide scale. The technology allows the organization of short-distance trips with users' own private cars, without the participation of professional drivers. A ridesharing platform implemented with this technology can be a complementary solution to current public transportation systems that could result in social, economic and environmental benefits for cities that deploy it.

Industrial partners are being sought to collaborate through a patent licence agreement for the development of a sustainable shared mobility platform.

An offer for Patent Licensing

A solution for social and sustainable urban trips

The possibility of serving multiple passengers on a single trip at a city-wide scale is a very complex computational problem. Nowadays, ridesharing solutions cannot cope with the scale requirements of a city. This AI technology deals with this problem, focusing on scaling up ridesharing

The present technology automatically assembles shared trips in real-time, being capable of coping with a large volume of travel requests and cars. The allocation of vehicles to passengers is done with the double objective of minimizing the distance to be travelled, then reducing costs, and of reducing the vehicle fleet. Therefore, its goal is to trade-off passengers' quality of service with the environmental benefits derived from using less cars in the public space.

The proposed system allows people to organize one-time trips on short notice with their private cars, and with no involvement of professional drivers. Unlike currently well-known ridesharing solutions, the proposed system does not need to manage a fixed fleet of vehicles. A ridesharing platform based on this technology can result in a social platform that support the incorporation of a large number of cars and users into a more sustainable mobility network without reducing the quality of service. It can also be integrated into a policy-making tool because it allows the creation and evaluation of different ridesharing scenarios.

Ridesharing mobility network for sustainable cities (GOAL 11)

Main innovations and advantages

- This AI technology is capable of processing hundreds of travel requests continuously issued by a large population of users and grouping them on shared trips in a very short time.

- The algorithm takes into account the distance to be travelled, the travel time of shared vehicles, and the occupancy of shared vehicles.

- Pooling passenger into cars in efficient routes and journeys implies a reduction in gas emissions, noise pollution, and traffic congestion for the benefit of the entire community.

- As a collective intelligence application, it has potential to yield significant environmental and societal benefits while guaranteeing quality of service, produce significant benefits for users, reducing the costs of their trips.

- The AI technology is currently integrated in a demo application.

Patent Status

Priority patent application filed suitable for international extension.

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