ELECTROWAY: SMART ROUTING FOR ELECTRIC CAR CHARGING

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PROBLEM DESCRIPTION





The perceived advantages & disadvantages of owning an electric vehicle

% of internet users considering purchasing a car who think the following are the main advantages and disadvantages of owning an electric/hybrid vehicle

6 More environmentally-friendly Running costs 32 Reduced noise 26 Tax credits or exemptions 26 Maintenance costs 23 17 Driving experience 14 Performance/handling 12 Style/status 10

Advantages

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Battery lifetime	
Cost of purchase	
Driving range	
Lack of charging stations	
Lack of car variety	
Value depreciation	
Performance/handling	



- · multiple types of charging connectors
- · car charge capacity
- \cdot charging station capacities
- · wildly different car ranges



external factors

- \cdot temperature
- · speed
- · wind
- · rain
- · snow
- · use of internal systems (i.e. the AC)

PRACTICAL ASPECTS



- · Time to calculate the route
- · Cost
- In the case of externalized map data, time and cost = number of point-to-point routing requests

APPROACHES





 The code is available on GitHub https://github.com/QuothR/ElectroWay



- · car object
 - · the current electric energy supply
 - · maximum electric energy supply
 - charging speed
 - · maximum speed of the vehicle
 - · the amount of power consumed by auxiliary systems.
 - ٠ ...
- the starting point(A) and the ending point(B).
- · collection of charging station objects
 - · the location
 - · charging points



- · Tom-Tom
- · OpenWeather

HEURISTIC

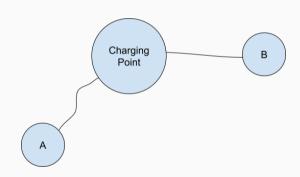


- · satisfactory solution
- · feasible amount of time

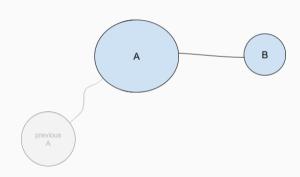








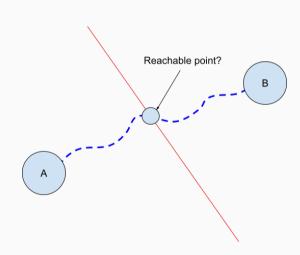




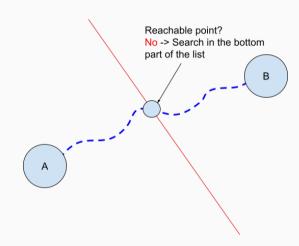




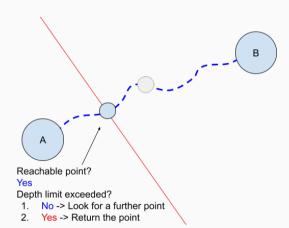




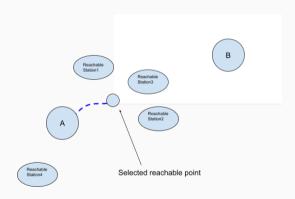




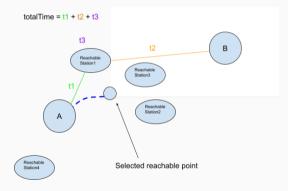






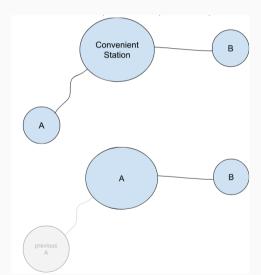






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FUTURE WORK





- · use of caching
- · integrating the ElectroWay application with existing charging station networks

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