



# celadon

Intelligent green energy and transportation software

## Road2™

The **Road2** trip planner is an application which can eliminate the fear of running out of charge for electric vehicle customers – thus broadening the EV market. A vehicle may have an advertised range of 100 miles, but if you take into consideration driving up a mountain, in bad weather, or any number of other adverse conditions, it could be as low as 50 miles – or over 150 miles in unusually good conditions. Because the current charging infrastructure is limited and regionally fragmented, the result can be disastrous – leaving drivers stranded without any way to reach their destination except a tow truck.

With **Road2**, the EV driver can drive freely with the convenience they currently enjoy in their gasoline car – only without the economic and environmental costs. The user picks a destination and watches as their simulated vehicle races along three routes (fastest, shortest and least energy), leaving three color-coded trails of its charge level. The user can view information on almost anything they could think of, from graphs of altitude and weather to animations of the view they'll have out the windows. And should they need to recharge, Road2 can help – drivers see all of the charging stations along their route, the reputation of the charging site, user comments on that site, contact information, pricing, and other information to help them make their driving and charging decisions. They'll even be able to add charging stations of their own.

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### Technology

The Road2 interface is powered by a full featured patent-pending physics simulator that evaluates the drivetrain, weather, terrain, and other driving conditions every few seconds along the route, with an altitude precision of up to four inches.

Weather and terrain data is cached in compressed blocks to dramatically increase performance. Vehicles change in efficiency as their torque, RPM, voltage, temperature, and other conditions change over the course of a drive. Hundreds of factors are taken into account: for example, a change in altitude leads to a change in air pressure, impacting aerodynamic drag and tire pressure, which in turn impacts rolling resistance.

The client-server approach of Road2 enables it to run on low-cost hardware and ensures that users always have the latest updates. It can take a variety of forms, including a Smartphone webapp, a vehicle application, and a standalone device the user can mount on their dashboard.

### Features

- Energy consumption calculation – can the vehicle reach its target?
- Vehicle leaves color-coded charge level as it travels.
- Worldwide map coverage with Multinational charger database
- Draggable routes (three, color coded for speed, distance and lowest energy usage
- Highway avoidance, route reversal, optional features
- Dozens of user-selectable trip details
- Customizable vehicle stats
- Hidden vehicle configurations secures sensitive data
- Street view animations
- Detailed trip summaries
- Twenty available information graphs
- Over 10,000 potential recharging sites
- Things to do while your vehicle charges
- Address and contact information for chargers
- User reviews and photos of charging sites
- Automatic charging cost calculator