

Smart navigation tech knows when cars are on overpasses

By [Ben Coxworth](#)

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When a motorist enters an overpass that runs parallel to a ground-level road, it's possible that their GPS navigation system will think that they're still on the lower road. As a result, the system will issue incorrect instructions. A new system created at the University of Hong Kong is designed to keep that from happening.



The Angle Difference Method in use on the road (Credit: University of Hong Kong)

Known as the 'angle difference method', the system was developed by a team led by Prof. Anthony Yeh Gar-On. It utilises an in-vehicle smartphone running a navigation app, which is linked by Bluetooth to the car's built-in or [plug-in onboard diagnostic device](#). The angle at which the phone is mounted doesn't matter, as an initial calibration process that is performed on level ground compensates for it.

When the car enters the on-ramp for an overpass, the system automatically detects the change in the vehicle's inclination. It compares that angle to the angle that the car should be at, if it's on the correct road – that information is available in online geographic information systems.

If it's determined that the driver has entered the overpass in error, the app instantly alerts them to the fact. And even if they're *supposed* to be on it, the navigation system won't mistakenly think that they're still on the ground-level road that they actually exited.

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ABOUT THE AUTHOR

An experienced freelance writer, videographer and television producer, [\[https://newatlas.com/author/ben-coxworth/ Ben\]](https://newatlas.com/author/ben-coxworth/)'s interest in all forms of innovation is particularly fanatical when it comes to human-powered transportation, film-making gear, environmentally-friendly technologies and anything that's designed to go underwater. He lives in Edmonton, Alberta, where he spends a lot of time going over the handlebars of his mountain bike, hanging out in off-leash parks, and wishing the Pacific Ocean wasn't so far away.