# This Silicon Valley car tech firm is bringing secret weapon to the streets of Sacramento

August 17 2018, by Tony Bizjak, The Sacramento Bee

A Silicon Valley tech company recently posted a video front and center on its website that may startle some Sacramentans.

It shows a sleek black car driving across the Tower Bridge ... with no one in it.

The company, Phantom Auto, is a key player in the emerging world of autonomous vehicles. But the car cruising across Sacramento's iconic portal wasn't a robot car. A human was in fact driving.

That person just happened to be 100-plus miles away, sitting in Phantom Auto's Mountain View headquarters, with a steering wheel, gas and brake pedals, and a series of computer screens that allowed him to see, via car cameras, 360 degrees around him.

It's called teleoperations, and some people in the autonomous vehicle industry say it's the little-known irony behind all the bold talk that computers are about to drive our cars for us and do it more safely.

Phantom Auto executives and many in the industry say that autonomous vehicles are decades away from being able to truly drive safely on city streets and highways all by themselves under any conditions.

Until that time, humans will act as remote monitors and sometime remote operators, watching over the vehicles and grabbing the wheel if the car's computer gets stumped or the system fails.

"We believe you will always need a human in the loop," Phantom Auto co-founder and chief strategy officer Elliot Katz said. "There are so many oddball scenarios multiple times a day."

It could be a tree that's fallen over the road, requiring the car to go over a double yellow line to get around. The computer may not be programed to do that. Or there could be a police officer in the street ahead at a crash, signaling cars to go around. The computer may just stop the car if it can't figure out what the officer wants it to do. Heavy rain or snow may confuse the car's sensors.

An autonomous system could, for instance, shut a car down in a freeway travel lane if it runs into a scenario it doesn't understand, Katz said. Someone needs to be there to steer the car off of the road until the technology gets experienced enough to deal with more atypical scenarios.

State regulators recognize that. The DMV requires any driverless autonomous vehicle being tested on the streets to have a remote driver or monitor watching over it. Two companies so far have applied to the state DMV for a permit to do driverless tests. Neither had yet been approved as of Friday, according to the DMV, which is not yet disclosing the names of the two companies.

Phantom Auto hopes its remote driving system and driver training—based on Israeli drone training—will be the ones that autonomous car testing companies will turn to when the first driverless test cars hit the road.

And Sacramento is the city Phantom Auto has chosen to show off its product, enticed here by the mayor and others who are eager to create a new tech economy in the capital city. Starting this month, company reps will be in town to "geomap" the streets between downtown and

Sacramento State, readying them for autonomous car tests, and prepping them to show off Phantom Auto's remote-driving system.

"We believe that Sacramento is going to be a key area (nationally) for testing," Katz said.

Phantom Auto's work here will include checking for a continuous wireless communication connection between the car and the remote driver. The company uses a technique it calls "bonding," where it overlaps all the providers—such as Verizon, T-Mobile and AT&T—to make sure it has the best chance at continual coverage.

But there likely will be communication dead zones. Phantom Auto will note them and tell autonomous car testing companies to avoid those spots, Katz said.

How safe is remote monitoring, and, if needed, remote driving?

The question remains an open one. The DMV requires driverless vehicles to be monitored, but doesn't have standards for remote driving. Phantom Auto, for instance, did not need permits or have to pass any safety protocols to remotely drive its car across the Tower Bridge.

That light regulatory touch has some consumer and car safety advocates upset. Regulators seem ready to allow tech companies to treat California streets like video games, but unlike video games, "when something goes wrong, people get killed," John Simpson of Consumer Watchdog said.

DMV declined a Sacramento Bee request last week to discuss safety issues involved in remote driving. It issued an email statement, instead, saying in part: "The California Vehicle Code addresses who is in control of the vehicle, not if a driver must be behind the steering wheel. That said, all drivers must have the proper class of license, must be insured

and must comply with every aspect of the vehicle code and traffic laws."

One national autonomous vehicle expert, Karen Pannetta, calls remote monitoring and driving the "security blanket" for the burgeoning world of autonomous vehicle technology.

But she has safety concerns.

Pannetta is a Tufts University dean, an electrical and computer engineering professor, and member of the robotics and automation group at the IEEE (Institute of Electrical and Electronics Engineers). She said she worries whether a human monitor can respond fast enough in a difficult moment, especially if human monitors are asked to watch over multiple vehicles at a time.

For now, remote operators may be watching over only one or a few autonomous vehicles at a time. But autonomous industry experts say that as technology improves, a monitor may be overseeing dozens of vehicles at once, and possibly more.

When trouble hits, the car will alert that monitor, Pannetta said. But, she asks, "what is the reaction time? Those are the big things."

Over time, the computer algorithms will learn to deal with more complex situations, she said, taking more responsibility away from monitors. Even then, humans may be needed to watch over some autonomous cars, such as rideshare vehicles, to make sure the person inside hasn't had some sudden health issue or there isn't some other problem inside the passenger compartment.

Katz said his system is ready to prove its worth in the coming months on the streets of Sacramento, right down to driving minutiae: The remote operator can hear honking and sirens. He can honk the horn and has a

speaker system to talk to police if pulled over.

"Anything a human in the car can do, our remote operator can do."



Citation: This Silicon Valley car tech firm is bringing secret weapon to the streets of Sacramento (2018, August 17) retrieved 21 September 2024 from https://phys.org/news/2018-08-silicon-valley-car-tech-firm.html