

Flywheel aims to replace taxi meters with cloud-based tool

By [Carolyn Said](#)

December 22, 2015 Updated: December 22, 2015 8:31pm



Photo: Nathaniel Y. Downes, The Chronicle

The new TaxiOS metering system which includes only the phone and a printer is seen on Monday, Dec. 21, 2015 in San Francisco, Calif.

To calculate fares, taxis have long relied on meters — clunky and expensive devices that are prone to breakdowns. They are a hulking reminder on every dashboard of a key difference between taxis and their new tech-focused competitors.

Flywheel, the San Francisco startup that has tried to help taxis keep up with the e-hailing apps, now has devised a 21st century alternative to the meter: a cloud-based GPS system for calculating fares and handling payment, navigation, dispatch, entertainment and advertising. It all runs on an Android phone with a credit-card reader attached.

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The metering technology, called TaxiOS, will allow cabs to lower rates at certain times, handle package deliveries, improve navigation and let passengers easily split fares, Flywheel said.

“In one fell swoop, we are modernizing the taxi industry and bringing it on par with everything the on-demand cars have,” said Flywheel CEO Rakesh Mathur.

On Tuesday, Flywheel said that California regulators approved TaxiOS for statewide use. The thumbs-up from the Division of Measurement Standards follows a two-month pilot of TaxiOS in about 50 cabs in San Francisco run by Flywheel Taxi, a cab company so enamored with Flywheel's app that it adopted its name.

“TaxiOS is more reliable, smarter and can be updated to add new features quickly,” said Hansu Kim, owner of Flywheel Taxi. In February, he rebranded the cars of DeSoto Cab, San Francisco's oldest taxi company, as bright-red Flywheel taxis to underscore their affiliation with the Flywheel e-hailing app. “When I look at the traditional taxi meter equipment, I see cobwebs and hear crickets.”

The taxi business has been ravaged by upstart rivals Uber and Lyft, whose smartphone hailing and cashless payments appeal to consumers. Taxi drivers complain that looser regulations created an uneven playing field for the new competition.

Matthew Daus, a former New York City taxi commissioner and lecturer at City University of New York's Transportation Center, said he sees TaxiOS as a big step in taxis' technology evolution — but he expects still more radical changes.

“What ultimately will happen is that all the data from the car's onboard diagnostic port will get streamed into the cloud,” he said. “That's the most accurate way to go.” Flywheel's TaxiOS, like the Uber and Lyft apps, tracks distance via GPS.



Photo: Nathaniel Y. Downes, The Chronicle

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Aaron Small of Flywheel, the company that makes an e-hailing app for taxis, demos the new TaxiOS on Monday, Dec. 21, 2015 in San Francisco, Calif.

TaxiOS represents a major improvement on the taxi meter, a device invented in 1891 that still relies on counting wheel rotations to calculate distance traveled. [Taxi charge for distance or for time when a vehicle is stopped. Uber and Lyft charge for both time and distance, plus base fees and safety fees — but they generally offer lower rates.](#)

Taxi meters gained notoriety over the years for unreliability. “Drivers got sophisticated in gaming the system a couple of decades ago,” Daus said. “There were actual chop shops that used to alter meters so drivers could advance them. If they saw in the rearview mirror that a tourist was falling asleep in the back seat, they’d advance the meter.” Stricter regulations clamped down on such practices, but the bad reputation remained.

TaxiOS will enable several features to rival those of Uber and Lyft, Mathur said.

Ride splitting: TaxiOS will allow unrelated passengers picked up at different times to split a fare, similar to UberPool and Lyft Line.

Dynamic pricing: Taxi prices are regulated and cannot rise above the set rates — or surge, in Uber parlance. However, taxis are free to reduce prices to lure passengers.

Last-mile deliveries: Rakesh said some San Francisco taxis are already delivering products for e-commerce companies. Such mobile logistics are considered key to Uber’s future. In San Francisco and a few other cities, for instance, [Uber now offers UberRush for package delivery and UberEats for lunch deliveries.](#)

Seamless payments: Riders can pay with cash, credit cards or credit cards stored in the Flywheel app.

Navigation: Google Maps and GPS are built into TaxiOS.

Other advantages include quicker cab handoffs between drivers, and the ability for drivers to work shorter shifts, Mathur said.



Photo: Nathaniel Y. Downes, The Chronicle

Flywheel taxis are seen on the lot on Monday, Dec. 21, 2015 in San Francisco, Calif.

“We can do a split meter system, where drivers no longer pay a lease for the vehicle, but pay a percentage of each transaction,” Kim said. Typically, cab drivers pay a daily gate of more than \$100 to lease a medallioned vehicle for up to 12 hours. It takes many hours behind the wheel to cover that rent and gas, and then turn a profit. Having drivers instead pay a percentage of fares to the cab company is the same economic model used by Uber and Lyft, which rely on citizen drivers in their own cars.

Currently taxi systems refresh cab locations every 15 to 20 seconds, while the GPS-based TaxiOS refreshes every six seconds or faster. That means passengers awaiting a cab they’ve summoned via the Flywheel app will see better real-time updates of how close it is, Kim said.

Wade Hudson, a taxi driver since 1987 and author of TaxiTalk.info, a blog for drivers, said he welcomes the new devices, and that other Yellow Cab drivers he chats with online are likewise positive about them.

“It will help the public see that the taxi industry is improving the quality of service and will continue to do so,” he said. “I like that the GPS updates of cabs’ location will be more rapid. And the cab’s interior will be less cluttered.”

TaxiOS maintains cabs’ ability to be summoned via street hails and telephone calls, as well as through an app. Flywheel provides the new systems for free and makes money by collecting a percentage of each transaction processed, “the same industry-standard 3.5 to 5 percent as Verifone,” said Mathur. It also charges a monthly fee for phone calls dispatched through the software. (Verifone, based in San Jose, processes electronic payments through point-of-sale devices at stores, gas stations, hotels, doctors’ offices and a range of other industries.)

Flywheel Taxi is now converting all 240 vehicles in its fleet to TaxiOS, Kim said. While that is the only announced deal so far, Mathur hopes that California’s approval eventually will lead to all 40,000 cabs in the state running TaxiOS.

The Flywheel app is now in more than 80 percent of the cabs in San Francisco, Flywheel said. It hasn’t given statewide figures, but says it has good adoption rates in Los Angeles, San Diego and Sacramento. Curb, formerly called Taxi Magic, is [another e-hailing app for cab drivers](#) that’s widely used in California and nationwide.

“TaxiOS opens up all sorts of new opportunities which taxis never had before,” Mathur said. “We are replacing a complex, expensive chain of components with a simple, streamlined device.”

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