

Google's Larry Page Proves, Yet Again, That He Is All BS And No Substance As His Election Rigging And Flying Cars Crash

- Page is Elon Musk's bromance boyfriend and they rig elections, campaign finance, stock markets and sex parties together
- His billionaire balloon ride project in NASA's Silicon Valley blimp hanger is a disaster
- Larry Page helps run a Silicon Valley organized tech crime empire: <http://dig-innovations.net> and <https://vcracket.weebly.com> and <https://www.thecreepyline.com> and <http://nationalnewsnetwork.net> and <http://londonworldwide.com>
- Page steals his ideas from small inventors and then finances U.S. Patent Office blockades against those inventors per <http://invent111.com>
- Page sneaks around at tech events to steal ideas: <https://www.nytimes.com/2016/01/24/technology/larry-page-google-founder-is-still-innovator-in-chief.html>

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Deputy editor for Industry; eyes on the skies

In 2017, success seemed to be just around the corner for Kitty Hawk, the secretive flying car company that's bankrolled by Google co-founder Larry Page and run by Sebastian Thrun, the Stanford AI and robotics whiz who had launched Google's self-driving car unit. Kitty Hawk had just shown off a prototype of the Flyer, a single-seat, battery-powered aircraft intended to be a low-altitude fun machine for use over water, like a jet ski on rotors, with handling that would make flying as easy as driving. "I'm excited that one day very soon I'll be able to climb onto my Kitty Hawk Flyer for a quick and easy personal flight," [Page said](#) at the time. The startup promised to put Flyer in eager buyers' hands by the end of the year.

Late that year the Mountain View, California-based company also began flight-testing a more ambitious project in New Zealand: a two-seat electric self-flying taxi called Cora that Kitty Hawk says will enable city dwellers to soar over gridlocked streets. "Just imagine travelling at 80 miles an hour in a straight line at any time of day without ever having to stop," Thrun [told the Guardian](#) a few months after Cora was unveiled. "It would be transformational to almost every person I know."

Two years later, however, Kitty Hawk's promise to bring personal flying to the masses has failed to take wing yet amid technical problems and safety issues with Flyer and unresolved questions

about its practical use, according to four former Kitty Hawk employees who were among six who spoke to *Forbes* on the condition of anonymity due to non-disclosure agreements. At the same time, it may have given up control of Cora, sources suggest.

Kitty Hawk confirmed to *Forbes* that, after unveiling a more polished version of the Flyer last year, it has decided not to sell the one-seater to individuals and has returned deposits to would-be buyers. Behind closed doors, Flyer encountered problems, including frequent breakdowns and fires involving batteries, electric motors and wiring, two former engineers said. Last year, the Mountain View Fire Department was called to put out an early morning blaze at the Flyer building, city records show; former employees said the fire at the Google-owned building involved damaged batteries that had been pulled out of a Flyer that had crashed the previous day in flight testing under remote operation.

“No person has ever been harmed or exposed due to undue risk in over 26,000 test flights with over 100 prototype vehicles,” wrote Shernaz Daver, an advisor to Kitty Hawk, in an email response to a list of questions sent by *Forbes*. She did not comment directly on the fires or reports of breakdowns or problems with its batteries.

Intent on bringing Flyer to market quickly, management in several instances brushed off workers who expressed worries that problems with the aircraft could endanger passengers, two former employees say. At least two members of the flight test team were let go after questioning the safety of the aircraft, they say, and some other members of the Flyer team who spoke up

quit or jumped to another program at Kitty Hawk. Those individuals declined to comment when reached by *Forbes*.

“It was a pattern — if you talked about safety you were done, so you just didn’t,” said one former employee. “That’s just how it had to be if you wanted to keep getting a paycheck.”

Daver did not directly comment on reports of employee departures, but said employees at Kitty Hawk are required to report safety-related issues to their managers, or through a confidential digital channel directly to the general counsel and human resources, and can anonymously discuss safety concerns with an external safety director.

Kitty Hawk got off to an earlier start than many of the scores of startups now attempting to build electric urban air taxis, and the deep pockets of Page, who has a nearly \$60 billion fortune, have been a huge advantage, enabling the company to hire hundreds of engineers, machinists and designers to create cutting-edge aircraft. However, the company faces the same problems as any aspirant in the field: the poor energy density of the current generation of batteries severely limits the flight times and carrying capacity of electric aircraft, and building a functioning prototype is faster and easier than turning it into a reliable product that satisfies aviation regulators’ safety requirements. In the case of urban air mobility, many of the requirements don’t yet exist.

These challenges may explain why a strategic partnership with Boeing announced in June could go much deeper than publicly announced. Public filings and organizational shifts at Kitty Hawk described by former employees indicate that there’s been a change of control of the Cora program, and Boeing seems the

likely acquirer. The jetmaker and Kitty Hawk declined to comment.

That would leave Kitty Hawk with two other aircraft: Flyer and [Heaviside](#), an autonomous winged one-seater unveiled in October that, in an attempt to solve the noise problem that has made heliports unwelcome neighbors, was designed to be 100 times quieter than helicopters, as well as faster. The company has shelved the idea of marketing Flyer aircraft as a recreational device and is exploring commercial options, perhaps running it as a kind of aerial ferry.

“We have moved to seeing it as a transportation service and not as a vehicle for individual purchase,” said Daver. “It is going to be a ride sharing model for transportation services.”

Larry Page began dabbling in aviation in 2010, quietly funding a company called Zee.Aero led by a Stanford aerospace professor, Ilan Kroo, near the Google campus. The original vision was to produce a literal flying car, with folding wings so it could fit inside a home garage, but that was quickly abandoned as impractical, and Zee went on to try other designs, including one registered with FAA under the name Mutt because of its marriage of new elements with an older configuration. It tested a piloted electric aircraft that the company considered selling as a kit to be assembled by buyers. Eventually Zee decided the plane should be developed into a pilotless air taxi, now dubbed Cora.

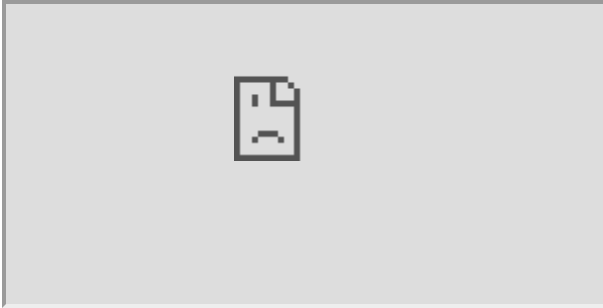
In 2015 Page set up another stealth startup next door to Zee.Aero and called it Kitty Hawk after the tiny coastal village in North Carolina’s Outer Banks where the Wright brothers tested

their own flying experiments. The modern-day Kitty Hawk was run by Thrun, who previously directed Google's moonshot R&D program and founded online education company Udacity. It tinkered with a series of concepts, including a complicated scheme to suspend a pod from aircraft by tethers that could pick up a person or cargo on the ground while the aircraft circled overhead.

Eventually Kitty Hawk, which went on to absorb Zee.Aero, embarked on a mission to be the first to get an electric passenger aircraft to market that could take off and land vertically. Thrun wanted a small team to work fast and creatively, using as many off-the-shelf components as possible, according to former employees. "The term thrown around was we were the cowboys of Kitty Hawk, we were doing crazy stuff," says one.

Kitty Hawk's Flyer, as the project came to be called, was intended to be small enough to avoid safety certification altogether, weighing in under 254 pounds so it could qualify under Federal Aviation Administration rules as an ultralight, a category of aircraft that's long been the province of hobbyists and tinkerers. Operation of ultralights is restricted – they can't be flown over populated areas or at night — but ensuring the aircraft is safe is left up to the maker.

With an engineering team fewer than 20, Flyer made rapid progress. Kitty Hawk offered a rare peek behind the curtain to the [*New York Times*](#) in 2017, showing off what appeared to be a motorcycle on a spiderweb with eight downward-facing rotors.



Then in 2018 it started giving a small number of [media test rides](#) at Lake Las Vegas of a more finished vehicle with a composite frame with a constellation of 10 upward-facing rotors around it.

Though Flyer was capped to 10 feet in altitude and 20 mph in speed, and said it was intended to be flown over water, for safety, the company was presenting it as a thrill ride, [putting up web pages to take applications](#) for the first production models from individuals and potential fleet operators like amusement parks or resorts. The YouTube personality Casey Neistat gave it a try, publishing [a video](#) that was watched 2.2 million times in which he shouts happily while banking and spinning Flyer around the lake.

But Flyer wasn't ready to thrill: the latest prototype was breaking down frequently and needed regular troubleshooting and repair by engineers, three former employees say. "This thing would break every few hours and need service," said one. Kitty Hawk did not respond to questions about Flyer's reliability.

Among the failures were a series of fires during its development. To save on weight, two former employees say that engineers dispensed with the protective shielding commonly used between lithium-ion battery cells in cars, bundling cells together with tape, increasing the risk that if one ignited, others would catch

on fire, too. Only recently did the Flyer program get its own battery expert on staff, one former employee says.

Over the last six months, the Flyer program has gone through a reset, former employees say. The focus has been on improving reliability rather than iterating on the design, and on finding a use for the vehicles.

“Kitty Hawk doesn’t start from the principle of what’s the economically viable thing we’re going to build. It engineers something to solve a problem and then it’s ‘OK, here’s a cool thing we built, what can we do with it?’ ” said an ex-employee who was among a wave of departures from the Flyer program this year.

The latest idea: that Kitty Hawk would operate Flyer as a service. The company has scouted out cities where it could offer point-to-point rides across bodies of water, which would make for a more forgiving surface to come down on in the event of a crash, two former employees say. And riders will no longer have the freedom to take Flyer for a joyride, they say: the flight path will be automated. Kitty Hawk has [applied for a permit](#) in Jersey City, New Jersey, to develop a floating dock and hangar for a potential route across the Hudson River to Manhattan, and is [exploring a route across San Francisco Bay](#), according to local media.

It’s unclear how Flyer would be regulated in such a use, with one grey area being whether it would be treated as a boat traveling above the water or a low-flying aircraft.

Kitty Hawk has reached out to the U.S. Coast Guard to ask how it would classify Flyer, a Coast Guard spokesman said. “We are taking a deliberate look at determining what these vehicles are,

as that determination will set precedence for years or decades to come regarding their place in the marine transportation system.”

The company's other major program, Cora, also faces daunting regulatory hurdles. Boeing might be the one to see it through.

In June, Boeing and Kitty Hawk announced a strategic partnership that they said would “bring together the innovation of Kitty Hawk's Cora division with Boeing's scale and aerospace expertise.” Public records and changes at the company suggest it goes deeper than that.

In May, Kitty Hawk general counsel Molly Abraham made a filing in Delaware to incorporate a company under the name of Cora Aero at the same address as Kitty Hawk; a November filing lists [Cora Aero's CEO as Gary Gysin](#), the former head of Liquid Robotics, a developer of wave-powered autonomous watercraft. His [LinkedIn profile](#) states he's head of a stealth mode startup.

Former Kitty Hawk employees said that around the time the Boeing partnership was announced, access to the Cora building, which had contained a cafeteria and reception area shared by all, was abruptly restricted to workers only on that program, and IT, HR and other back office workers were divided between Cora and Kitty Hawk. Several said they believe Boeing is now in control of Cora.

Hard yards lie ahead for Cora in New Zealand, where Kitty Hawk chose to try to win safety certification due to enticing features of the country's air safety code, which promises to allow the company to collaboratively define airworthiness standards with that country's Civil Aviation Authority. Additionally, a unique

provision of the regulations permits “adventure flights” by aircraft that don’t have standard safety certifications, such as vintage warbirds, which could allow Kitty Hawk to launch a revenue-generating passenger service before Cora is fully certified, said James Lawson, an aerospace safety consultant who previously consulted with Kitty Hawk on Cora when the company was considering pursuing certification in the U.S.

Cora is hand-built, largely of custom components made in-house, and still at the stage of proving out its technology, former employees on that program said. Another version needs to be constructed with safety systems, weatherproofing and passenger comforts, and that’s designed to be easily manufacturable. Those final, long and painstaking steps promise to be a tall hurdle for many of the urban air mobility startups as they try to transition from Skunk Works-type inventors to real businesses, said Lawson – and it could account for the bulk of the spending.

“The technology is one thing, but 80% of the effort is in productizing and building an aircraft that can be certified,” said Lawson.

With reporting by Biz Carson

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