

Bloomberg Businessweek

The Design Issue

Shinola:
The Making of an
All-American Brand p84

Rachel Comey:
Uncomplicated Fashion
for Complex Women p68

Pinterest:
What Is It
Anyway? p86

Evan Williams:
His Post-Twitter
Medium p91

Dolly Singh:
A High Heel That
Won't Hurt p80

Ayah Bdeir:
Reengineering
Education p87

Lindsey Adelman:
The Way to Keep
Talent Happy p72

Michael Bierut:
How to Pitch
Any Client p92

Bjarke Ingels: Building Planet Google

p52



Innovation

Hybrid Drones

Form and function

A typical commercial drone can travel a few miles before having to recharge. Top Flight's version, powered by both a rechargeable lithium ion battery and an onboard gas generator, can travel up to 100 miles.

Innovator Long Phan

Age 39

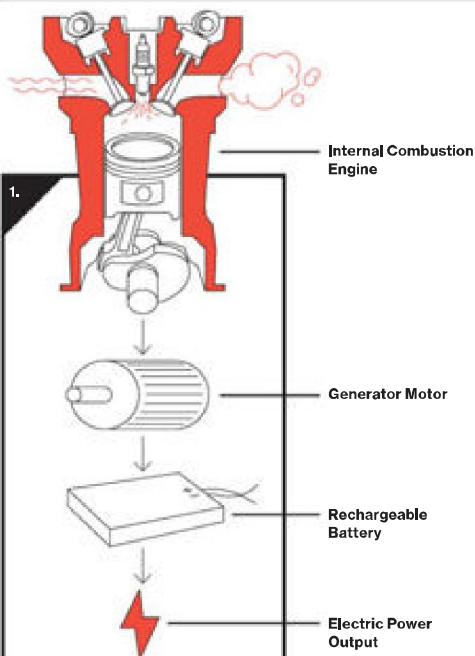
Founder of Top Flight Technologies, a year-old startup with five full-time employees in Malden, Mass.

Background Phan, who earned a Ph.D. in engineering at MIT, has worked on drones since the 1990s. In 2013 he began trying to increase their range.

Funding Top Flight has raised \$1 million from investors Phan wouldn't name.

Testing Phan says he plans to ship about a dozen drones to potential clients this summer to test for bugs.

Caveat For the time being, the Federal Aviation Administration bans most U.S. commercial drone flights.



Power The gas generator provides most of the lift for the six-rotor drone, with boosts provided by the battery when needed. Phan says the craft can fly for at least two hours.

2.

Payload Top Flight's drone can carry up to 20 pounds of cameras and other cargo, compared with a few pounds for most commercial models.

Next Steps

Phan says he hopes to sell at least 100 of the \$50,000 drones to industrial customers such as oil and gas companies early next year. He's working to increase their capacity by adding bigger props and motors. Stephen Trimble, an editor for researcher Flightglobal, says it's not yet certain the FAA will permit wide use of commercial drones by 2016, but Top Flight's models "seem to be promising a lot more than what others have achieved so far." —Michael Belfiore

person who bought it—in the case of medical users—or the seed it grew from, and both programs record all inventory changes, making theft easier to detect. "There's a lot of covering our butts going on," says Robin Hebb, chief financial officer at **Trill Alternatives**, which uses MJ Freeway's software at its dispensary and three grow houses in Denver and nearby Boulder.

MJ Freeway was founded in 2010 by a couple of software-startup veterans. BioTrack, owned by Bio-Tech Medical Software in Fort Lauderdale, started in 2007, and until 2009 mostly tracked drugs such as Vicodin. Both offer features familiar to users of SAP or Oracle software, such as automatically generated sales reports, automatic updates for new regulatory requirements, and the ability to export spreadsheets to Excel. Each also comes with a few of its own bells and whistles. BioTrack allows companies to monitor employee shipment activities by using handheld fingerprint scanners, and can compare the performance of a business's various farms or dispensaries. MJ Freeway lets managers schedule workers' tasks and track crop data such as pH levels.

BioTrack charges its more than 1,200 clients \$200 to \$500 a month for use of its software, depending on the size of the grow house or dispensary, and contracts with Washington state regulators. In April it won a contract to provide its tracking system to the New Mexico Department of Health. MJ Freeway charges as much as \$250 a month, plus an initial fee to customize software for its 1,000 clients.

Bigger names are becoming involved in the market. **Xerox** also bid to supply Washington's system, and tracking-software company **Viridian Sciences** has customized a program made by **SAP**. Their software may appeal to governments interested in having one product of record, so that law enforcement doesn't have to juggle competing systems. Dawne Morris, chief marketing officer of software consultant Proteus Business Solutions, says that as the market grows, "there are going to be more hands in the pot." —Olga Khariif

The bottom line Two startups have begun to emerge as leaders of the young market for pot-tracking database software.

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