



Making the Impossible, Possible - teTra aviation uses Trimble Technology to win the GoFly Disruptor Award



The teTra eVTOL device relies on Trimble's MB-Two receiver for precise heading and accuracy to win the GoFly Prize Competition.

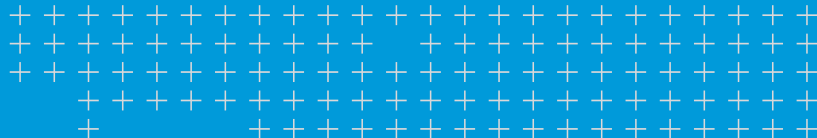
Personal air travel going any distance at any time, but not at luxury prices, is something many can only dream of. Leading experts in aerospace and aviation, engineering, design and more are partnering to make this dream a reality. teTra aviation entered the GoFly Prize Competition with a solution in mind that takes personal travel from the ground to air.

teTra's eVTOL device is using Trimble's MB-Two and LV59 to provide precise heading and accuracy during the GoFly Competition. With a successful demonstration during the competition, their application won the Disruptor Prize of \$100,000.

Solution

Trimble MB-Two and LV59

- ▶ High-precision heading
- ▶ Positioning at 20Hz sampling rate
- ▶ Cost effective
- ▶ 24/7 technical support
- ▶ Full supply readily available for purchase



Overview

teTra aviation is a personal eVTOL (Electric Vertical Take-Off and Landing) manufacturer that is taking air transportation to the next level: “fly anytime, anywhere”. With their end-goal in mind, the 7-person teTra aviation team entered into the GoFly Prize Competition to bring flight to individual citizens. With the use of the Trimble MB-Two and LV59, they were not only able to achieve flight but also win the competition!



NEED

Engineers, inventors and other creators are working to make the impossible, possible by solving a tough question – how do we make people fly? While UAV/UAS applications are certainly not uncommon, personal flying devices are. Leading experts recognized the need for the application and called up any team able to create the world’s first safe, ultra-compact, urban-compatible personal flying device.

Boeing, the world’s largest and most forward-thinking aerospace company, has partnered with GoFly to turn flying dreams into reality. The GoFly Prize Competition is a two-year, international competition that consists of three phases where teams can enter in to win. The competition presented an opportunity for the teTra team to design and submit a device that gains visibility by large sponsors, win funding, and ultimately meet their end goal – to make people fly.

CHALLENGE

The teTra team was challenged to design and submit a device against 800 other teams in the competition. GoFly provided a set of technical rules for each team. The personal flying device needed to be:

- ▶ Safe, quiet and user friendly
- ▶ Ultra-compact
- ▶ Near-VTOL—capable of carrying a single person for a distance of 20 miles without refueling or recharging

Carrying any individual on an aircraft requires reliability and top-notch accuracy to ensure the safety of the passenger. With time of the essence and limited budget available, teTra searched for a solution that would meet all such requirements. Decision making and execution of the project needed to be done quickly and efficiently. To ensure the project stayed on course, the team needed a solution provider that had top of the line technical support, quick shipping, and a product cost that wasn’t over the top.

CREATING A SOLUTION

The competition specifically challenged the teams to achieve the following goals in order to win: Phase I, Phase II, and Fly-off. teTra had to demonstrate how their device could:

1. Conduct real-time demonstrations of the application (speed and endurance also judged)
2. Achieve vertical take-off and landing
3. Showcase the quiet, compact design of the device
4. Create an open-air flight experience that was unlike any other

The teTra team selected the Trimble MB-Two GNSS receiver and LV59 GNSS antenna so that the personal aircraft could perform precise heading and position and accomplish reliable vertical take-offs and landings. This technology supported the application to safely fly for the required 20 minutes during the competition with a 10 minute reserve.

The final device weighed in at 227kg and was made up of a lightweight CFRP Wing and Cowl

from UCHIDA, a CFRP shaft from Fujikura Composite and a 3D printed aluminum Motor Hub from Tamachi. It using domestic outlets, the device reaches a full charge in just 6 hours.

The teTra team received Trimble products at an affordable cost, they arrived on time, and the team had full access to the company’s technical support group to help with any integration questions or issues.

In light of additional testing, the teTra aviation device can now travel 30km with quad motors and they can achieve a more precise and reliable flight pattern.





RESULTS

The device exceeded the expectations of the judging panel for the competition and the teTra aviation team walked away with the Pratt & Whitney Award along with \$100,000.

With the success of the device, the teTra team is planning to further expand into the domestic Japanese market along with entering into more competitions. They have already proven that the impossible is possible: you can make a human fly. It's clear that not even the sky's the limit!

For more information on the GoFly Prize Competition, please visit: www.goflyprize.com.

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