Monitoring the technical condition of light agricultural aircrafts

Challenge

LLC TechnoService Networks from Russia specializes in agricultural aviation. There are more than 80 light aircrafts in the company’s fleet. In the course of work, the company encountered the problem of systematic and unpredictable equipment breakdowns. Unexpected breakages can lead to emergency landings or even aircraft crashes that may jeopardize the pilots' safety and result in high transportation and repair costs.

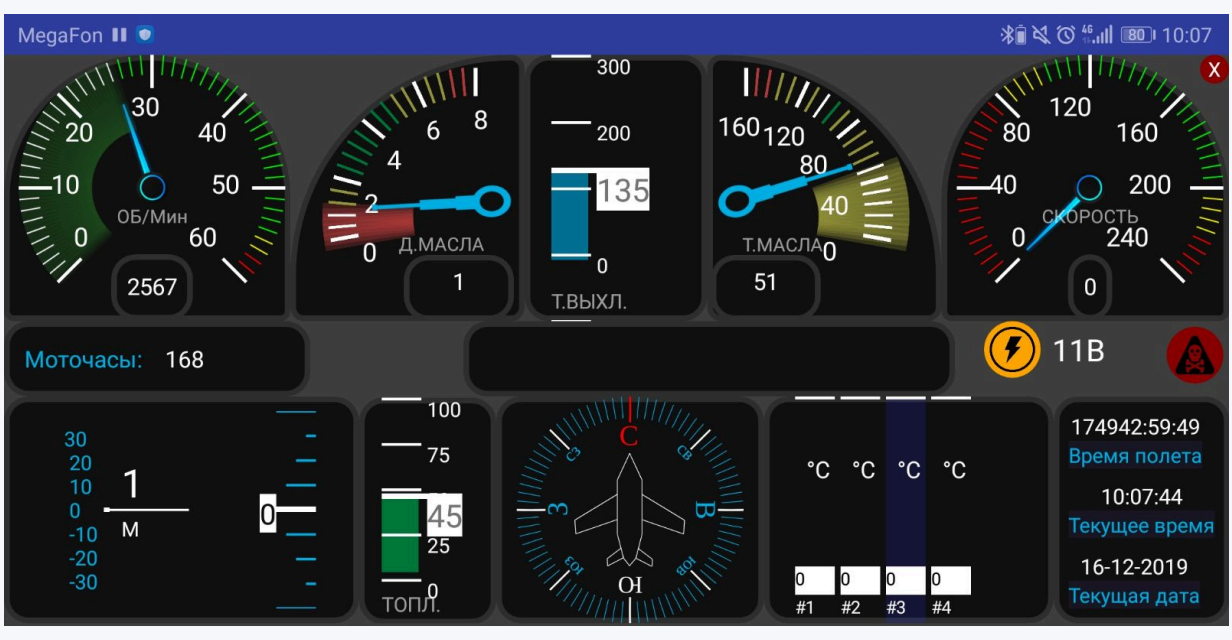
The root of the problem was the technical equipment of the aircraft. Generally, the company uses simple models of Russian-made aircrafts with a limited number of readable technical state indicators if compared to European analogs.

The company needed a solution to improve the maintenance control and reduce the cost of the repair.

Solution

Our partner Interra developed and implemented a Wialon-based solution to minimize the risk of the aircraft breakages and ensure staff safety.

- Galileosky 5.0 trackers are installed on the aircraft. The Bluetooth module is used to send all the data from the terminal to the Android device in the cockpit while the application displays all indicators on the screen designed in the form of a dashboard. Interra specialists developed this application specifically for this project. The European aircraft’s dashboard served as a sample here.



The interface of the smart aircraft’s digital dashboard

- All the information on the aircraft state is sent not only to the pilot’s device via Bluetooth but also through the internet connection to Wialon for the dispatcher.
- As the same Android device can be used on several aircrafts, the pilot gets information on the number of stored engine hours of a particular plane when the app is launched, and the Galileosky terminal is connected.
- The Wialon partner used an external Bluetooth module for communication between the Galileosky device and an app installed on an Android device. They also developed a two-way protocol for data transmission. Due to this, the system runs without an internet connection.
- Interra’s developers have also utilized an atmospheric pressure sensor with a mathematical algorithm for calculating the ground clearance. Additionally, a four-channel discharge temperature controller has been developed and integrated as a tracker.
- The digital dashboard is easy to customize. For example, you can set custom names to sensors, change how they look, and set critical values. The dashboard can also be used in other projects, for example, for drivers, mechanizers, operators, etc.

It's also important to note the difficulty of the project which was connected to running the debugging tests.

Results

Due to Interra's solution, all the LLC TechnoService-Networks dispatchers and pilots get full information on the planes’ technical condition. The factory-supplied dashboard of the company's aircraft is now upgraded by a digital one that displays data on the flight direction, ground clearance, the number of engine hours and speed, oil pressure and temperature, four-channel discharge temperature, etc.

Minimizing the number of breakdowns

No severe equipment breakages since the system was implemented.

Full control

The solution allows the comprehensive control of the aircraft’s technical condition.

Savings

The company saves money due to the absence of accidents. Previously, the company paid over $2,000 to repair one plane.

Safety

Close aircraft performance monitoring improves the pilots’ safety.

Company profile

IoT project of the year nomination: Special recognition

Industry: Agriculture

Solutions

Wialon

Hardware

Galileosky v 5.0

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