

The first Solar Impulse aircraft was primarily designed as a single-seat plane with a non-pressurized cockpit, four nacelles under a wing provided with a set of lithium polymer batteries, a 10 hp (7.5 kW) electric motor and one twin-bladed propeller. A carbon fiber honeycomb sandwich structure was used to reduce the weight of the single wing, whose wingspan was similar to that of the Airbus A340 airliner. Theoretically the aircraft was able to stay in the air indefinitely due to its 11,628 photovoltaic cells on the upper wing surface and the horizontal stabilizer which could generate electricity during the day to power the electric motors and to charge the batteries at night. In addition to the charge stored in its batteries, the aircraft could operate on the potential energy of height accumulated during the day to power its night flights.

Solar Impulse 2 differs from its prototype Solar Impulse 1 in carrying more solar cells and more powerful motors among other improvements. The plane has a wingspan of 71.9 m or 234 ft, which is wider than Boeing 747's and carries more than 17,000 solar cells on its wings. It weighs only about 2.3 tons (5,100 lb) due to the carbon-fiber and features a non-pressurized 3.8 cubic meter cockpit equipped with innovative avionics technologies. These include an autopilot, used in long transcontinental flights. Cruising up to an altitude of 12,000 meters (39,000 ft) is possible owing to additional oxygen feeding and different environmental support systems installed onboard.

In 2015-2016 the aircraft made its more than 23-day trans-oceanic flight operating solely on solar power.

Today, the Solar Impulse engineers are working on developing an unmanned solar-powered aircraft capable of non-stop flying at high altitudes to assist satellites in carrying out work related to infrastructure planning, communication, weather and climate observations, measurements and other extra applications which are currently impossible or difficult to perform.

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UKRAINIAN COMAT ROBOT "PHANTOM"

This creation of a Ukrainian military-industrial complex deserves the world's attention. This is not surprising, since most of the "new" development of Ukrainian engineers – just upgraded versions of Soviet technology, used by many decades. However, the robot "Phantom" is from "another story". On the development of the six-wheel machine it has long been known, and now a new

version of it was presented to enterprise "Spetstehnoeksport" officially worldwide. Since the presentation in various publications have appeared dozens of articles devoted to "Phantom", a robot West even called "WALL-E on steroids."

What is a novelty? The robot has a 12.7 mm machine gun, and for the destruction of armored targets can be used four anti-tank guided missiles (ATGM) "Barrier." Range ATGM hitting the target – up to 5 km. Communication with the robot is carried out by means of radio range of up to 10 km or via fiber-optic cable up to 5 km in length.

It is important to note that the robot has already proved some of the stated features. It is, in particular, can successfully move over rough terrain. Previously it was also carried out successful test firing version, armed with machine guns. Remote-controlled robot "Phantom" was one of the few works of Ukrainian defense industry in recent years, to which the genuine interest of foreign customers was shown. So, at the exhibition IDEX 2017 Ukrainian delegation talked with the representatives of the United Arab Emirates, expressed interest in "Phantom." Remote-controlled armored personnel carrier has a length of 3 meters, a width of 1.6 m and a height of 0.91 mPi. With such dimensions the machine is able to accelerate to 38 km / h, with a power reserve of 20 km. "Phantom" is also kitted out day and night sighting system and is able to aim at a distance of 1000-2000 m. Unmanned tactical multipurpose vehicle "Phantom" is a remote-controlled armored personnel carrier. "Phantom" is able to transport ammunition, evacuate the wounded from the battlefield and to perform combat missions.

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PROSPECTIVE ANALYSIS ON FRANCHISING

The intellectual property becomes the main target of purchases and sales transactions during the countries' transition to a social market economy. The transfer of the intellectual property rights on a contractual basis is an effective way that helps to implement innovative technologies into life, allowing the establishment of contractual relations on a franchising basis. The analysis of prospects for franchising development as an effective way to establish and develop a new business in the highly competitive environment with minimal losses of funds and reducing the occurrence of risk events, that increases confidence in operation stability of such an enterprise in future, is a topical direction of activities.