Concerning widespread use of steganography, progress in this area can fundamentally change existing approaches to the problem of information protection.

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UDC 629.76/.78:001.12/.18 (043.2)

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SPACE X'S ROCKET CONCEPTS – STEP FORWARD IN AERONAUTICAL ENGINEERING

Some say, that in Space X wage per year is not high comparing with other aerospace companies and the president of the company Gwynn Shotwell confirmed this rumor, but still, people prefer this job instead of the rest of the options. Let's try to find out the reason along with a story of the success of this truly legendary company.

In 2002, someone, named Elon Musk created the company, with lots of perspectives and ambitious planes about human on the Red Planet – Mars. Who might have thought, that in 2018, the SpaceX company would launch the spacecraft with the biggest number of engines ever made. But still, success did not always accompany the SpaceX.

In 2006 they initiated a launch of their 1st rocket – Falcon 1, which ended with failure. This result only gave further motivation for development. In the meantime, NASA monitors the results of all SpaceX's researches concerning engines and rocket concepts. In 2008 the 1st successful launch of the Falcon with payload delivery to the orbit was performed. It was one of the first big steps for the company. The same year NASA signs a profitable contract with SpaceX within Commercial Resupply Services for supplying the International Space Station. It provides such important thing as financing.

Engines used in these launches were originally made by SpaceX engineers and called "Merlin". Basically, it's a simple liquid propellant engine, with kerosene and liquid oxygen as a working body, but it has one important feature – this engine, and driving unit itself can be used multiple times. We'll return to this later. There're lots of configurations of this engine, depending on the purpose and kind of rocket. Also, for more ambitious planes, SpaceX is working on a brand new type of the engine – they call it "Raptor".The 1st testing of this engine ended successfully. Practically, this beast can develop thrust equal to 1 Meganewton. If they succeed, "Raptor" will become the most powerful rocket engine ever made.

Falcon Heavy –a rocket, with the biggest number of engines ever made was launched on 6th of February, this year. Whole world had crossed their fingers for success. The cost of launching is worth about 90 million dollars. The next rocket, which may be compared with the Falcon Heavy by payload efficiency is Delta Heavy IV (owner – United Launch Alliance) – 350 million dollars. The rocket consists of 3 Falcon9 1st stages, which make up 27 engines. Tesla Roadster, Elon Musk's own car of was used as a test payload. In case of a failure of some system, the rocket would crash into the ocean, or with the worst scenario – explode at the launching pad.

The aim of the SpaceX – is to settle the humans on Mars. Current technologies do not allow people to realize the flight today. During a space flight the human loses 2% of his bones mass per month. Also, calf muscles lose up to 13% of the volume during 6 months.

And, of course, radiation is a serious hazard. The huge cost of such journey and impossibility to overcome some of the most serious problems make it not expedient right now.

SpaceX were discoverers of stages, that can be used multiple times during take-off. The concept is rather simple: once you have launched a rocket carrying a satellite, and some preset velocity and altitude are reached, driving devices, performing the function of providing necessary thrust, start separating from the main assembly, and then instead of falling from the heaven and breaking up into countless pieces, these driving devices, having saved a certain amount of fuel during some period of time, being operated by a program, perform landing on some platform on the continental part of the Earth.

In 2015, the SpaceX company has announced a big project – the launch of two satellites getting ready to be tested in the Earth orbit – called Starlink. The aim is to cover the whole planet with wireless Internet connection. These launches were performed on 22nd of February. Next group of satellites will be delivered to orbit no sooner than 2019-20. Google corporation has invested over 1 billion dollars, admitting a large potential of this project.

The number of staff in SpaceX is constantly growing. According to some sources the total number of its employees is nearly 7000, and most of them are programmers – not engineers. It's because of a software, that is hard to develop for a rocket to work properly. The company represents itself as a fellowship of dreamers, working not for money but for the idea, for the development of the future, in which we're living, and they are succeeding.

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INFORMATION TECHNOLOGIES IN MEDICINE

Information technologies penetrate deeper into all areas of our present life. Medicine is no exception: in many medical institutions, various electronic systems of work management and automated document circulation have been successfully applied.

For centuries, a doctor could trust only his own hands, eyes and ears and his intuition which helped him examine a patient to determine the cause of illness. The first instruments used to assist a physician in examining patients were a glass mercury thermometer to take body temperature, a stopwatch to check for a pulse and a wooden ear tube – a stethoscope – to listen for a heartbeat.

In recent years, the technology has significantly improved and the time needed to get a clear X-ray image has considerably reduced. This was achieved thanks to the use of electron-optical amplifiers, high-sensitivity sensors and computers. All these top-notch techniques allowed to take "a glance" at a human body with no damage done. For this, there is no need to wait until some "breakdown" becomes evident. In the future, everybody is supposed to have a "genetic passport" of a citizen. It will contain information on the presence of hereditary genetic diseases in human genome and genes of predisposition to other diseases. All these systems have some previous experience being employed in medicine.