• there should be simple initial configurations that grow over a significant period of time, undergo various changes, and end their evolution in one of three following ways: completely disappear, switch to stable configuration and cease to change at all or go to the oscillatory regime with a certain period.

At the beginning of the game there is a placement of living cells, the player, who then acts without any further participation in accordance with the rules described above. In this game there is a huge number of different shapes that are formed due to simple rules. All figures, at the moment, are divided into the following classifications:

• Stable – shapes, placement of cells, which remain unchanged after each generation.

• Periodic (oscillator) – figures, placement of cells, which are repeated in a certain number of generations.

• Moving figures (spaceships, gladiators or gliders) – figures, placement of cells that are repeated, but with some shift in space.

• Guns – figures, placement of cells, which are repeated, but each cycle, they additionally create new moving figures.

• Steamboats are mobile shapes that leave track behind in the form of stable or periodic shapes.

• Eaters – stable (or periodic) shapes that can, when collided with some moving figures, keep their cells in place, destroying the moving figure.

• Long-livers – figures that for a long time change the location of their cells before stabilizing.

In the computer realization of the game, the universe is limited and the upper part is connected to the lower, and the left with the right, which is the simulation of the surface of the torus (a geometric body formed by rotating a circle around an axis that lies in one plane with a circle, but does not cross it. The shape of the torus looks like a bagel outside), but the field is displayed on the screen in the form of a uniformly distributed grid. The algorithm for generation change consistently checks all cells, which calculates the number of neighbors, then checks them with the rules and assigns the cell's status. For full-fledged operation of this algorithm it is necessary to use two two-dimensional arrays.

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THE NEW WORLD: SAFETY OR ILLUSION?

Nowadays people try to protect their lives in all possible and impossible ways. We want to live in a world that is better for us, so we are ready to go for a lot for our own peace of mind. Some of security measures are surveillance cameras, spy pens, fingerprint scanning and a social network based on human DNA. How far is humanity ready to go?

Let's start with the project "Smart Nation", which was set up in Singapore. It is one of the safest and most comfortable cities for life. Here you cannot throw garbage in an

unnecessary place; you also cannot smoke where it is not supposed to. It is not only because of the culture of the city. Any of your offenses will be recorded by one of the millions of surveillance cameras installed on the streets of this beautiful city. Moreover, last year a system of sensors was introduced here, which allow tracking the movements of each person in the city, the activity of the residents to count the average density of the crowd. This process is monitored by several private companies selected by the state, but everyone says that the system can be trusted. But what will happen if all this data will be in the wrong hands?

Let's move to the project, which is almost not heard. The sensors do not react to your fingerprints or even to your face, like the newest iPhone. They react to human DNA. The main reason of this development is safety. Imagine, that at the time of detection of your offender, all inputs and outputs will automatically be closed for him; he will simply be detained and punished. Moreover, payment for something using DNA will be also possible. All you need is to touch the sensor. Thus, all criminality in the world can be reduced practically to zero. But the question arises: what if this data falls into the wrong hands?

Although we know well that in our world there is nothing permanent and perfect. Imagine that you simply lose all money from your account. Or, that someone knows absolutely everything about you: starting from a favorite kind of flakes and ending with a personal life. However, information leakage is not the only problem of such systems. Much greater problems are processing and storage of all these data streams. Imagine that in the same Singapore there are 2 cameras for one person (as average). This is about 11 million cameras, the information from which you need to store. For all this, there are simply huge servers created. They perform thousands of operations per second. It is not known what will happen then, but even with the current development of technologies, we will not be able to store the amount of data from all these sensors that will be needed to create a network tied to DNA. Also, all these cameras and sensors require a source of energy. For example, one standard camera consumes 3 watts, then multiply by 11 million and the numbers will shock you. For modern scales this may be a bit. But just think how many resources are required to produce this energy. And the last problem is just the creation of such sensors. This is a rather expensive process. But in fact, all this money will pay off the possibility to control people.

It seems to us that all these systems may become our fast future. Another question, how quickly will people invent the technologies that allow all these things to be done? And that we still choose: personal life or illusory security.

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PRACTICAL APPLICATION OF STEGANOGRAPHY

Steganography is the science of hidden data transmission. It is a combination of methods and tools for their implementation, which make it possible to hide the fact that information exists in one or another environment.