To the Ministry of Health

from the International Academy of Troublehacking (IAT)

**PROPOSAL TO CREATE**

**THE "EPIDEMIOLOGICAL SHIELD OF THE STATE" SYSTEM IN YOUR COUNTRY**

The coronavirus (COVID-19) pandemic has proven that biological threats can have significant consequences in the modern world. The Russian inventor Ilia V. Volochkov proposed the idea of ​​creating the Epidemiological Shield of the State based on artificial intelligence systems (computer vision) through the application of new scientific methods for system improvement (**troublehacking**[[1]](#footnote-1)). These ideas are demonstrated on the author’s YouTube channel in the video titled “Coronavirus: ideas to combat using artificial intelligence | troublehacking | COVID-19":

<https://www.youtube.com/watch?v=boAfLdxTqHk>

The epidemic begins with a small number of infected people who infect others as they move freely. **If a few infected people are identified and isolated from society before they infect others, the spread of infection can be stopped at the very beginning, and an epidemic can be prevented.** Creation of an automated system of protection against biological threats is proposed to accomplish these tasks.

* **The proposed system is able** to detect infected citizens in real time and take quick measures against them automatically, without human intervention, for an unlimited number of people. For example, it can send an SMS about the need to urgently consult a doctor and take tests, as well as to put a mask on to protect others. In other words, all the major cities of the country can be kept under epidemiological control in real time, and the infected can be accurately identified before they infect others.
* **Technically**, the system “Epidemiological Shield of the State” consists of a network of thermal imagery devices and video surveillance cameras, the data streams from which are sent to a single data center via the Internet, where potentially infected citizens are identified using neural networks through the markers of elevated body temperature and through the face recognition system (for example, FindFace[[2]](#footnote-2) that operates in Moscow). In other words, the crowds of citizens are photographed with a thermal imagery device and a surveillance camera, citizens with elevated body temperature (potentially infected) are automatically detected, identified by their faces (contact details are found), and informed about the need to undergo an examination. Next, the infected are isolated in order to prevent the infection of others.
* **The system is deployed** in key transport nodes – for example, at metro stations or central streets of large cities. The system is quite simple and consists of just a camera, a thermal imagery device, and a software package. Due to this, the systems can be freely moved to locations with an unfavorable epidemiological situation.

Ilia V. Volochkov also proposed a similar idea of ​​creating a system for mass control over the implementation of precautionary measures in times of epidemics and emergencies. If all citizens always wear masks at the time of the epidemic, the spread of infection can be greatly slowed down. The problem lies with the social irresponsibility of citizens, who do not wear masks even at the time of the pandemic, thereby spreading the infection. Through the use of artificial intelligence systems, data streams from CCTV cameras can be analyzed, people without masks can be detected, their identity can be identified using a face recognition system, and quick measures against them can be taken automatically. For example, a fine can be issued similar to a system of cameras that automatically record traffic violations.

Below are the potential results of creating the system “Epidemiological Shield of the State”:

1. **Prevention of most epidemiological threats**, including seasonal flu, through early detection of infected people.
2. **Blocking the spread of infection**. Infected citizens who are not aware of their illness will not infect others, because they will be quickly detected and isolated.
3. **Solution to the problem of quick measures.** Even if a person took the tests yesterday, they can get sick today, and only real-time control allows to identify them.
4. **Solution to the problem of mass isolation of citizens.** Mass isolation of citizens leads to huge economic losses and business collapse. The action of the system “Epidemiological Shield of the State” is targeted and aimed at isolating already infected citizens. As such, the need for mass isolation of citizens may become irrelevant.
5. **Solution to the problem of staff shortages** and negligence in detecting infected people. The process of protection against biological threats is automated through the use of artificial intelligence systems. Once configured, the system will efficiently work for years.
6. **Saving budget funds**. The potential costs of treating the infected people and the purchase of drugs and equipment at the time of epidemics are huge. If epidemics are prevented, these funds will be saved. Among other things, business also suffers from epidemics, and this system will allow to prevent the economic consequences of biological threats.
7. **Budget replenishment**. The issuance of fines for violators of the epidemiological rules can be automated through the implementation of the proposed ideas, similar to the automatic issuance of fines for traffic violations. For example, it can be fines for not wearing a mask at the time of the epidemic.
8. **Ease of implementation**. Only a one-time development of a software package for processing video streams from surveillance cameras and thermal imagery devices is required, as well as a one-time purchase of imagery devices and video cameras. In addition, many of the already installed CCTV cameras can be used in the system, if they are able to recognize the face of an individual person. Likewise, face recognition systems already exist and operate.

The “Epidemiological Shield of the State” is a **concept** at the moment. We offer the interested organizations to put these ideas into practice with their own resources. The purpose of this message is to offer your state the very idea of ​​creating such a system in order to protect your citizens from biological threats. Its implementation requires computer vision programmers, equipment, and a testing environment. I.V. Volochkov, the author of the idea, is ready to be a consultant and provide terms of reference. The contact email is [**iv@troublehacking.com**](mailto:iv@troublehacking.com).

Sincerely yours,

Ilia V. Volochkov

Russian researcher, inventor,

President of the International Academy of Troublehacking (IAT)

April 18, 2020

Contacts

E-mail: iv@troublehacking.com

Website: https://troublehacking.com

Research ID

AuthorID: 1045459

SPIN: 1602-2469

ORCID: 0000-0002-0271-2525

ResearcherID: AAD-9429-2019

1. International Academy of Troublehacking https://troublehacking.com [↑](#footnote-ref-1)
2. Face recognition system https://findface.pro [↑](#footnote-ref-2)