

Digital Platforms and Emerging Technologies in Face of the Advancement of COVID-19 in the World

The pandemic that is changing the world, accelerates the process of digital transformation and the use of disruptive technologies. As never before, the benefits of the Third Industrial Revolution (computers and internet) along with those of this Fourth Industrial Revolution, become essential to develop our lives in confinement and to combat the advance of COVID-19.

Since the emergence of the outbreak, there have been various initiatives that have been developed through the use of emerging technologies and ICTs, to carry out multiple tasks related to monitoring, tracking, control, alerts, diagnosis, health care, geolocation and other functions associated with prevention and propagation mitigation.

We are currently facing unprecedented challenges that oblige us to carry out concrete actions, from each one's place, so that we can contribute our grain of sand to the entire community. That is why, from the Innovation and Artificial Intelligence Laboratory of the School of Law of the University of Buenos Aires (www.ialab.com.ar), we have systematized the developed success cases worldwide into a comparative table. In addition, in these brief pages, we explain the different utilities, by dividing them into four groups, without disregard that in some cases certain functions may also apply to another group.

1. Technologies for Critical Area Monitoring and Detection

In this group we find those that aim to detect the main sources of infection. In general, they use the geolocation that comes from electronic devices to cross data and inform both where the highest concentration of sick people is, as well as alert possible contagions based on the data of people who have had contact with the person suffering from the pathology. In addition, some which also include the function of sending alerts to the authorities about non-compliance with preventive measures to avoid infections, mainly preventive and compulsory isolation, have been created.

Here we have found:

- Korea Spatial Information & Community¹

It is a platform created in Korea, which has a mapping service that, through a device's geolocation, assists in the detection of COVID-19. Through data, it is able to determine the situation of the patients and the places of diagnosis and health care.

¹ <http://www.nsd.go.kr/lxportal/?menu=3085#>

- Stop Covid 19 Cat²

This app, developed in Catalonia, uses the geolocation of mobile devices to track infected people and, in this way, take advantage of the data to develop public policies based on the evolution of the pandemic. It generates heat maps according to the collected data that in turn allows health authorities to locate possible risk cases and thus avoid possible contagions.

This becomes possible by offering a questionnaire that allows citizens to know if they are at risk of contracting coronaviruses, as long as they allow the application to collect their geolocation data. In this way, it is possible to decongest attention lines and, in the event that a risk is detected, the health personnel can intervene.

It is available for download on both the Android and Apple iOS operating systems. It is also possible to use it in the web browser.

- Self quarantine safety protection³

This technology, developed in Korea, allows the government to monitor citizens while they are in quarantine. Through the GPS it allows to know whether the citizen has left the area assigned to them and sends alerts both to those who breach the isolation and to the corresponding authority.

This app has been recognized as one of the examples of significant policy since it has allowed Korea to have a greater knowledge about the spread of the disease within its country.

- Alipay Health Code⁴

It is an app, created in China, that assigns users with different colors according to their location, basic health information and travel history. Green allows freedom of movement, while yellow and red indicate they need to quarantine or enter a supervised quarantine facility, respectively.

² <https://www.rtve.es/noticias/20200324/coronamadrid-stop-covid-19-cat-aplicaciones-creadas-para-descongestionar-telefonos-emergencia/2010679.shtml>

<https://www.esmartcity.es/2020/03/23/app-stopcovid19cat-permite-hacer-seguimiento-personas-coronavirus-cataluna>

<https://play.google.com/store/apps/details?id=cat.gencat.mobi.StopCovid19Cat>

<http://canalsalut.gencat.cat/ca/salut-a-z/c/coronavirus-2019-ncov/stop-covid19-cat/>

³ <https://www.technologyreview.com/s/615329/coronavirus-south-korea-smartphone-app-quarantine/>
https://www.elespanol.com/omicrono/software/20200315/app-frenado-coronavirus-corea-sur/474454544_0.html

⁴ <https://www.japantimes.co.jp/news/2020/03/24/asia-pacific/china-green-light-alipay-app/#.Xn6H0NJKjIU>

<https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html>

- App that detects cases of COVID-19⁵

It is an app that is being developed in El Salvador. The co-founder of the company reports that the application has two modules: one that registers the places where the user has been, as well as the heat maps of the situation of COVID-19 within the territory.

- Corona 100⁶

This app, developed in Korea, warns the user when it is less than 100 meters from a place where there has been a confirmed case of coronavirus. The data also provides demographic information on each of its users.

- Private Kit: Safe Pat⁷

The app has a double function, on one hand it allows citizens to know if they have had contact with an infected person and, on the other, the authorities can know their movements and thus know the sources of infection.

- Trace Together⁸

It is a technology developed in Singapore by SGUnited, GovTech and the Ministry of Health that allows to track the close contact of an infected person during the passing days through Bluetooth. In addition, it allows you to have knowledge about the time during in which you have encountered them. In this way, if necessary, it is possible to communicate with them, in order to notify about the potential risk of contracting the disease.

Its use is simple. It is enough for the user to download the app onto their device, enable the notifications, keep the Bluetooth activated and allow the program to run.

- CoronaMadrid⁹

It is an application developed in Madrid that allows people to carry out self-evaluations through a questionnaire to determine the risk of COVID-19. For this, the user must enter the data, which then the Ministry of Health is authorized to use. After the evaluation, the person is instructed how to continue according to the diagnosis.

⁵ <https://forbescentroamerica.com/2020/03/24/desarrolladores-salvadorenos-crean-app-para-detectar-casos-de-covid-19/>

⁶ <https://elpais.com/tecnologia/2020-03-07/cuando-la-batalla-tecnologica-contras-el-coronavirus-amenaza-el-derecho-a-la-privacidad.html>

⁷ <https://edition.cnn.com/2020/02/28/tech/korea-coronavirus-tracking-apps/index.html>

⁸ <http://safepaths.mit.edu/>

⁹ https://www.economiadigital.es/tecnologia-y-tendencias/has-tenido-contacto-con-alguien-infectado-esta-app-cree-saberlo_20046768_102.html

⁸ <https://www.gov.sg/article/help-speed-up-contact-tracing-with-tracetgether>

⁹ <https://www.coronamadrid.com/>

<https://www.redaccionmedica.com/autonomias/madrid/coronavirus-madrid-lanza-la-app-coronamadrid-para-diagnosticar-contagios-4958>

2. Technologies for Diagnoses and Care

In this group, we find technologies that assist in pathology diagnosis and that decongest communication networks and medical care, through systems that allow medical tests and consultations to be executed from any electronic device.

- COVID Puebla¹⁰

It is an app developed in Mexico that allows people to carry out self-evaluations to determine if they are at risk of having contracted COVID-19. They can be done on the web, through the app or through WhatsApp. On the portal, users find a questionnaire with general data and symptoms that can determine suspected cases.

- Health in Sonora¹¹

The Ministry of Health in Sonora has presented an app to prevent, detect, and attend to possible cases of COVID-19 in real time, by medical specialists who will be available online and can be consulted using computers or smartphones.

- Smart Doctor¹²

It is a Peruvian telehealth platform that allows doctors to be contacted in a timely and simple manner, from anywhere in the territory. Medical counseling is free.

- COVID-19¹³

It is an app that allows for the self-evaluations of COVID-19 symptoms to determine the possibilities of having contracted the disease. Through it, data is collected and information is processed, including that related to your health. The self-assessment form is available on the website of the Argentinean Government and can also be accessed through the application.

- Midis App Salud¹⁴

It is a platform used in Argentina and Colombia that allows to carry out a self-evaluation of the COVID-19 virus. It centralizes all the user's health information and, in case of emergency, the background and contacts can be viewed.

¹⁰ <https://24horaspuebla.com/2020/salud-presenta-portal-y-app-para-autoevaluacion-por-covid-19/>
<https://previenecovid19.puebla.gob.mx/>

¹¹ <https://heraldodemexico.com.mx/estados/plataforma-digital-sonora-coronavirus-covid19/>

¹² <https://www.smartdoctor.pe/category/app-smart-doctor/>

¹³ <https://www.argentina.gob.ar/coronavirus/app>

¹⁴ <https://midisappsalud.com/>

- Vocalis Health¹⁵

It is an AI-based technology developed in Israel that uses one's voice to detect and monitor health status. It works with large volumes of data to analyze the health of the population. This application allows to identify the vocal footprint of patients with COVID-19.

3. Technologies that Assist in the Supply of Medical Instruments

These are extremely useful for doctors. They allow to quickly solve the lack of necessary elements for health care and, in general, provide a quality service.

- Médico- Kit¹⁶ Device

It is a device developed in Chile that takes samples from patients to diagnose or rule out the existence of COVID-19 in the field, that is, it can be used anywhere, thus preventing the person from having to travel to the medical center.

- 3D Manufacture of respirators¹⁷

3D printers have been used at Hospitals in Italy to create valves for respirators that are discarded with each use.

In Spain, engineers have teamed up to create inexpensive respirators and send supplies during the pandemic.

With them, the lack of instruments is quickly solved.

- Coronabot¹⁸

It is a robot created in Australia that assists in disinfection on a large scale, since it has the capacity to transport 100 liters of disinfectant. It is capable of removing small obstacles, it can connect from a 100 km distance and operate anywhere with 4G connection.

¹⁵ <https://vocalishealth.com/>

<https://www.infobae.com/america/tecno/2020/03/24/israel-prueba-una-innovadora-aplicacion-para-identificar-la-huella-vocal-de-los-pacientes-con-coronavirus/>

¹⁶ <https://www.prochile.gob.cl/noticia/empresa-chilena-desarrolla-dispositivo-medico-kit-de-toma-de-muestras-en-terreno-para-el-covid-19/>

¹⁷ <https://www.europapress.es/portaltic/sector/noticia-hospital-italiano-solucion-a-falta-respiradores-covid-19-utilizando-impresoras-3d-fabricar-repuestos-20200317125112.html>

<https://www.diariolasamericas.com/coronavirus-fabrican-respiradores-impresion-3d-n4195284>

¹⁸ <https://fretailrobotics.com/>

4. Technologies that Organize and Offer Real and Immediate Information to Citizens

These offer citizens real and useful information about the evolution of the pandemic in the world and allows the user to obtain recommendations and advice from specialist doctors.

- COVID-19 InfoCU¹⁹

It is an application for mobile devices developed by Infomed, with updated and reliable information about COVID-19. This app developed for Cuba, draws on the content available on the “Coronavirus Infections” website, and offers professionals in the National Health System and the general population basic information about the coronavirus family, the infections they cause and the latest in the development of this pathogen: confirmed cases, associated deaths and affected countries.

- CoronAPP²⁰

It is an application created in Colombia to know the evolution of the disease. Through it, it is possible to know the behavior of the virus and design containment and prevention measures.

- DoctorGatesApp²¹

It is an app for health professionals that allows discussing and sharing medical cases, expanding clinical knowledge and connecting with world experts to solve difficult cases. In this instance, it allows patients to benefit from the effective exchange of knowledge of medical personnel.

¹⁹ <http://www.sld.cu/noticia/2020/02/27/disponible-aplicacion-desarrollada-por-infomed-sobre-el-covid-19>

²⁰ https://play.google.com/store/apps/details?id=co.gov.ins.guardianes&hl=es_AR

<https://www.minsalud.gov.co/Paginas/CoronApp.aspx>

²¹ https://play.google.com/store/apps/details?id=com.doctorsgategmbh.doctorsgate&hl=es_AR