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58 Años

COLEGIO DE INGENI ROS DEL PERÚ

En esta ocasión festiva, en representación de la FMOI, le felicito por los grandes éxitos logrados durante los últimos 58 años y le deseo mayores éxitos en el futuro, sobre todo, en el empeño de una recuperación verdaderamente transformativa de la crisis de COVID-19.

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Protect Human life from COVID-19 and Build Back Better

by using emerging technologies in engineering

GONG Ke
President of WFEO

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United Nations
Educational, Scientific and
Cultural Organization

WORLD
ENGINEERING
DAY

The inaugural celebration of the first World Engineering Day that was planned to take place on 4th March at the UNESCO Headquarters in Paris was postponed due to the COVID-19 pandemic.

Engineers are standing in the front line of fighting against COVID-19

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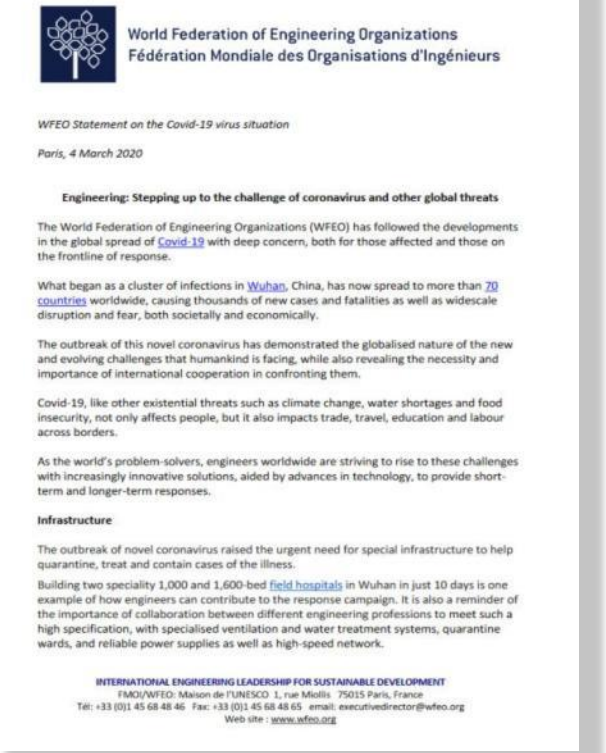

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WFEO Statement on the Covid-19 virus situation

Paris, 4 March 2020

Engineering: Stepping up to the challenge of coronavirus and other global threats

The World Federation of Engineering Organizations (WFEO) has followed the developments in the global spread of Covid-19 with deep concern, both for those affected and those on the frontline of response.

What began as a cluster of infections in Wuhan, China, has now spread to more than 70 countries worldwide, causing thousands of new cases and fatalities as well as widescale disruption and fear, both societally and economically.

The outbreak of this novel coronavirus has demonstrated the globalised nature of the new and evolving challenges that humankind is facing, while also revealing the necessity and importance of international cooperation in confronting them.

Covid-19, like other existential threats such as climate change, water shortages and food insecurity, not only affects people, but it also impacts trade, travel, education and labour across borders.

As the world's problem-solvers, engineers worldwide are striving to rise to these challenges with increasingly innovative solutions, aided by advances in technology, to provide short-term and longer-term responses.

Infrastructure

The outbreak of novel coronavirus raised the urgent need for special infrastructure to help quarantine, treat and contain cases of the illness.

Building two speciality 1,000 and 1,600-bed field hospitals in Wuhan in just 10 days is one example of how engineers can contribute to the response campaign. It is also a reminder of the importance of collaboration between different engineering professions to meet such a high specification, with specialised ventilation and water treatment systems, quarantine wards, and reliable power supplies as well as high-speed network.

INTERNATIONAL ENGINEERING LEADERSHIP FOR SUSTAINABLE DEVELOPMENT
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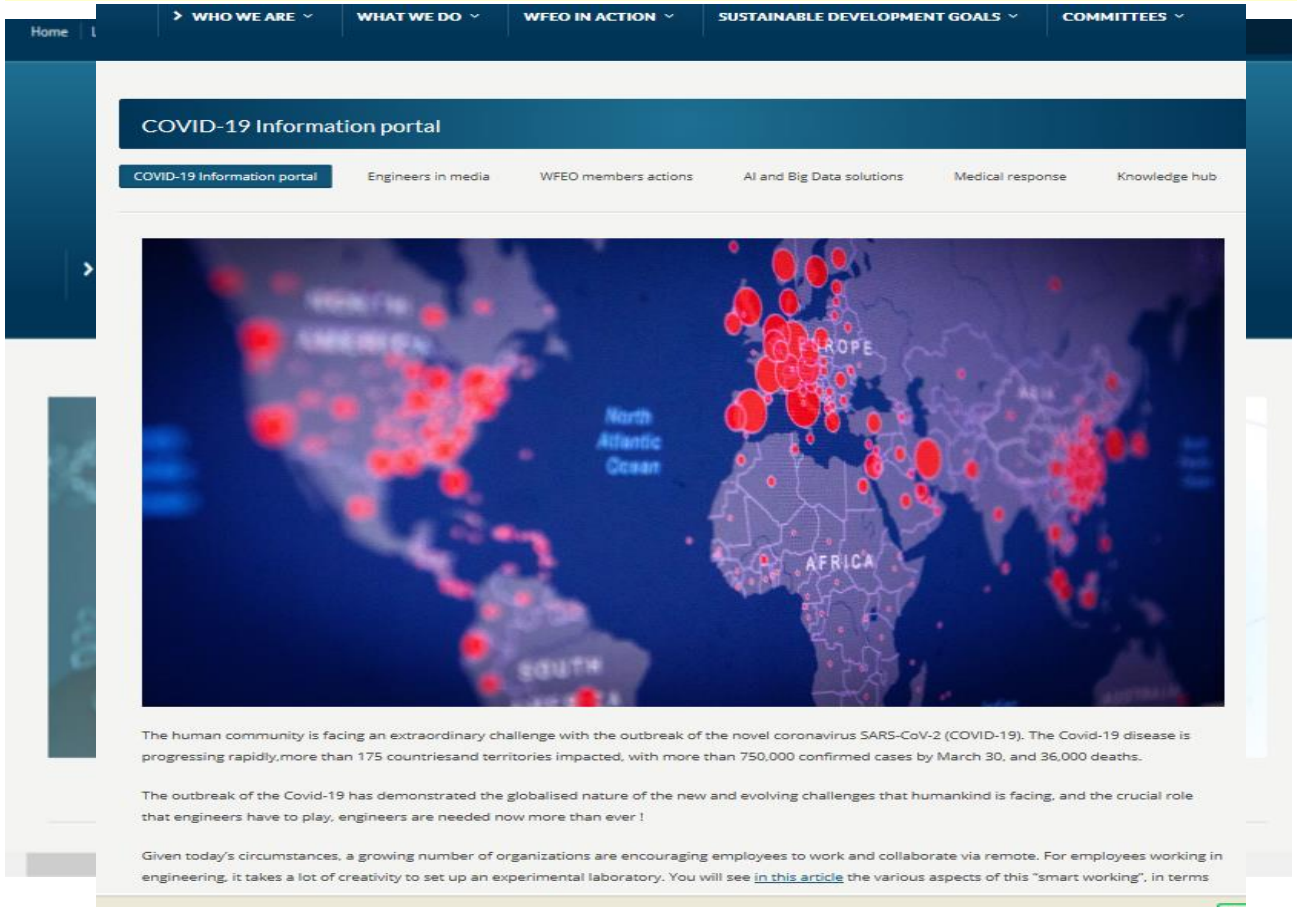
Web site : www.wfeo.org

➢On 4th March, WFEO declared its statement ***"WFEO Statement on the Covid-19 virus situation - Engineering: Stepping up to the challenge of coronavirus and other global threats"*** highlighting the necessity and importance of international cooperation in confronting the following engineering challenges:

> Infrastructure
> Medicine
> Monitoring
> Collaboration and Partnership, etc.

http://www.wfeo.org/



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COVID-19 Information Portal

Though in locked down, WFEO secretariat has developed COVID-19 Information portal to present relevant and reliable information, news feeds and resources from engineering perspective.

The information is shared under 5 themes:

> Engineers in media
> WFEO members actions
> AI and Big Data solutions
> Medical response
> Knowledge hub

> Engineers in media

The 1st tab focuses on the engineering initiatives and solutions that helped fight COVID-19, and also the vital importance of international collaboration.

Examples of articles items:

> The value of engineering in critical times

> Engineering response to COVID-19

➢Tools to understand, monitor and anticipate the COVID-19 outbreak

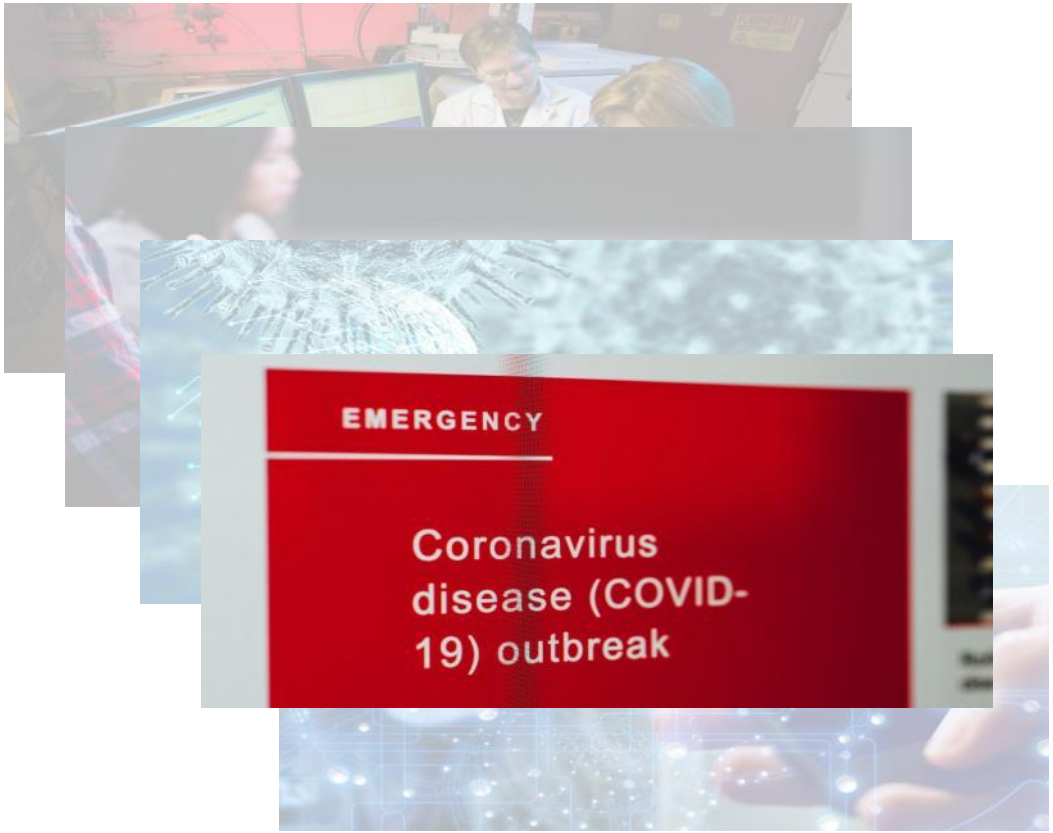
➢> Engineers supporting children's learning during COVID-19 lockdown

> WFEO members actions

The 2nd tab lists the initiatives and actions brought by WFEO members.

Examples of articles items:

- The release of a Green Paper from the Institution of Civil Engineers UK
- Recommendations for The Prevention of the Contagion in Construction and Building sites from Ordem dos Engenheiros de Portugal



> Contributions to the medical response

The 4th tab highlights articles showing the contribution of the engineering community in medical area.

Examples of articles items:

- The use of the 3D Printing technology to quickly produce oxygen valves or masks
- Development of a respiratory isolation box and ventilators
- Development of an innovative face shield and hands-free door opener

> Knowledge hub

The 5th tab Knowledge hub presents a list of links leading to COVID-19 resource and information portals from international organizations.

Examples of :

> Singapore Department of Health

> UK Department of Health

> World Health Organization

> OECD

> Johns Hopkins University

> International Science Council

> EU Open Data Portal

> Artificial Intelligence and Big Data solutions

The 3rd tab showcases news articles where AI and Big Data innovations are more specifically applied.
Examples of articles items:

- How digital infrastructure can help us through the COVID-19 crisis
- Recognition by the Computerized Tomography and AI of the characteristics of COVID-19 infection
- AI-based multi-sensory analytics to detect when individuals are suffering from a fever.

Prediction

ON JANUARY 9, the World Health Organization notified the public of a flu-like outbreak in China: a cluster of pneumonia cases had been reported in Wuhan, possibly from vendors' exposure to live animals at the Huanan Seafood Market. The US Centers for Disease Control and Prevention had gotten the word out a few days earlier, on January 6. But a Canadian health monitoring platform had beaten them both to the punch, sending word of the outbreak to its customers on December 31.

BlueDot uses an AI-driven algorithm that scours foreign-language news reports, animal and plant disease networks, and official proclamations to give its clients advance warning to avoid danger zones like Wuhan.

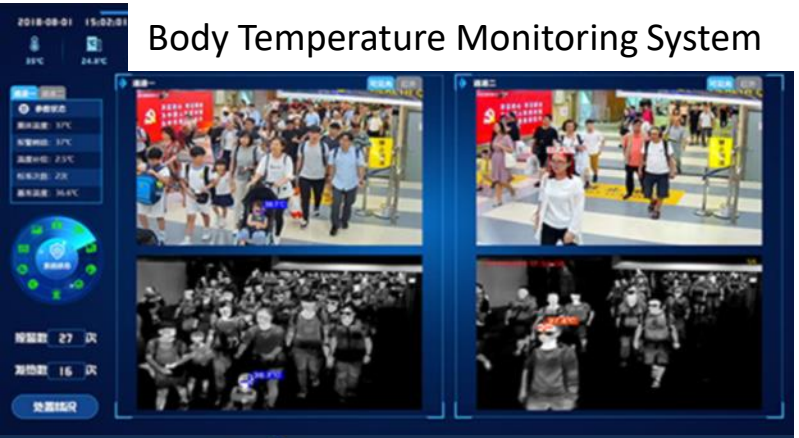
HING GUIDE: ESSENTIALS GUIDE: SYMPTOMS

ANNUAL CHOICE AWARDS LIVE! VOTE NOW!

e First Warnings of the

data to predict the spread of diseases like link

Body Temperature Monitoring System



Monitoring the Spread of COVID-19

An important aspect of the response to the coronavirus outbreak has been to monitor its spread, in which big data and AI have played an important role in areas like:

- Automatic body temperature monitoring
- Infected people and possible contact tracing

Diagnosis

09/03/20

AI, big data, infotech deployed against COVID-19

Technology is now being utilised for the detection, diagnosis and treatment of COVID-19. Copyright: Pau Colominas, CC BY-SA 4.0. This image has been cropped.

Testing is vital in combating the spread of the disease, and using AI to identify COVID-19 patients from other sources, such as CT scans has been proved effective. The Computerized Tomography and Artificial Intelligence recognizes the characteristics of COVID-19 infection to the patient's lung by deep learning.

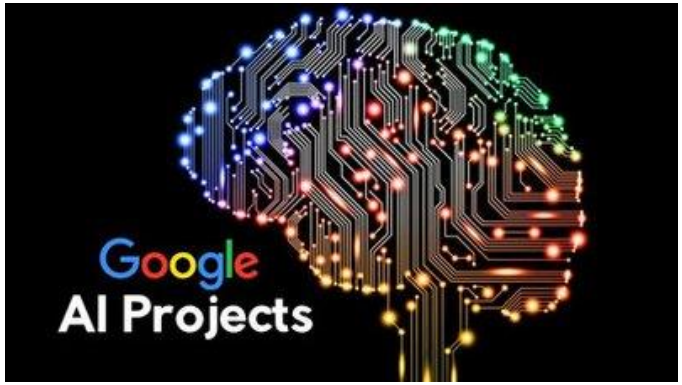
This learned system could then perform like an experienced doctor in image recognition of the COVID-19 infected lung, and much quicker. It has already been used in more than 100 hospitals in China and in many countries outside of China for early screening.

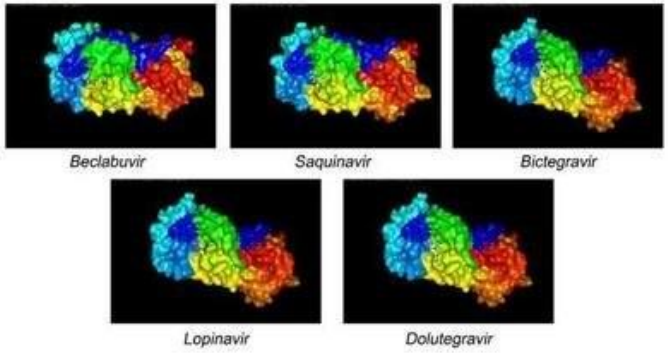
Diagnosis

The Israeli Ministry of Health launched a nationwide scheme that does daily monitoring of coronavirus-related symptoms of the population by using **Diagnostic Robotics' digital risk assessment and monitoring platform** for COVID-19.

The platform, which analyzes the patient's clinical symptoms and underlying health status, generates a personalized, AI-based risk profile for COVID-19, in addition to providing next-step guidance.

Drug Development





AI is also being used to accelerate drug development to treat COVID-19. For example, *Google's Deep Mind AI* system is being used to identify characteristics of the virus that may help to understand how it functions. This would be useful information in working out what treatments to pursue.

Others include *UK-based BenevolentAI*, which is using AI to identify promising existing treatments for other illnesses that could be effective in treating COVID-19.

Drug Development

Photo by Yonhap

In Korea, *Theragen Etex* and *Synteka Bio* are among employers of AI systems and big data analytics to screen candidate compounds to fight the coronavirus

In general, it is necessary to review 10,000 candidate molecules in order to release one potential drug candidate, but this process takes time. However, using AI can significantly save time and money as it can scrutinize more than a million research papers at a time.

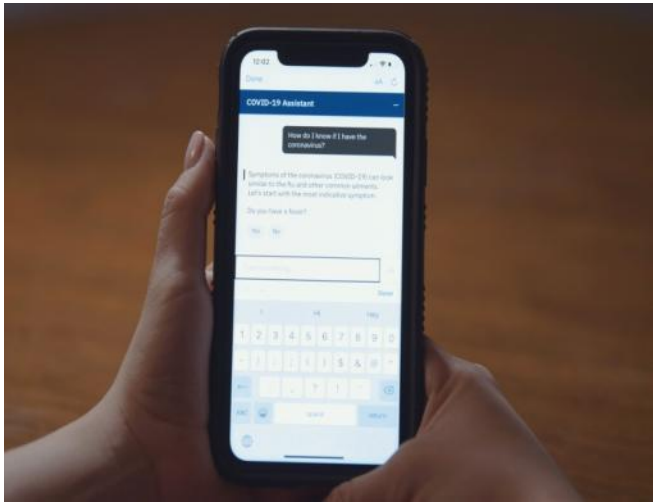
Medical Equipment Production

Vuforia Expert Capture (Image: PTC)

Smiths Medical paraPAC plus ventilator (Image: Smiths Group)

By allowing remote experts to see the physical world in video and annotate physical objects during the call, *Smiths Medical*, a medical device manufacturer in UK participating in the Ventilator Challenge tapped into the capabilities of PTC's Vuforia Expert Capture and Microsoft HoloLens to capture the crucial assembly steps and processes involved in building one of its Rapidly Manufactured Ventilator Systems

Public Science Literacy



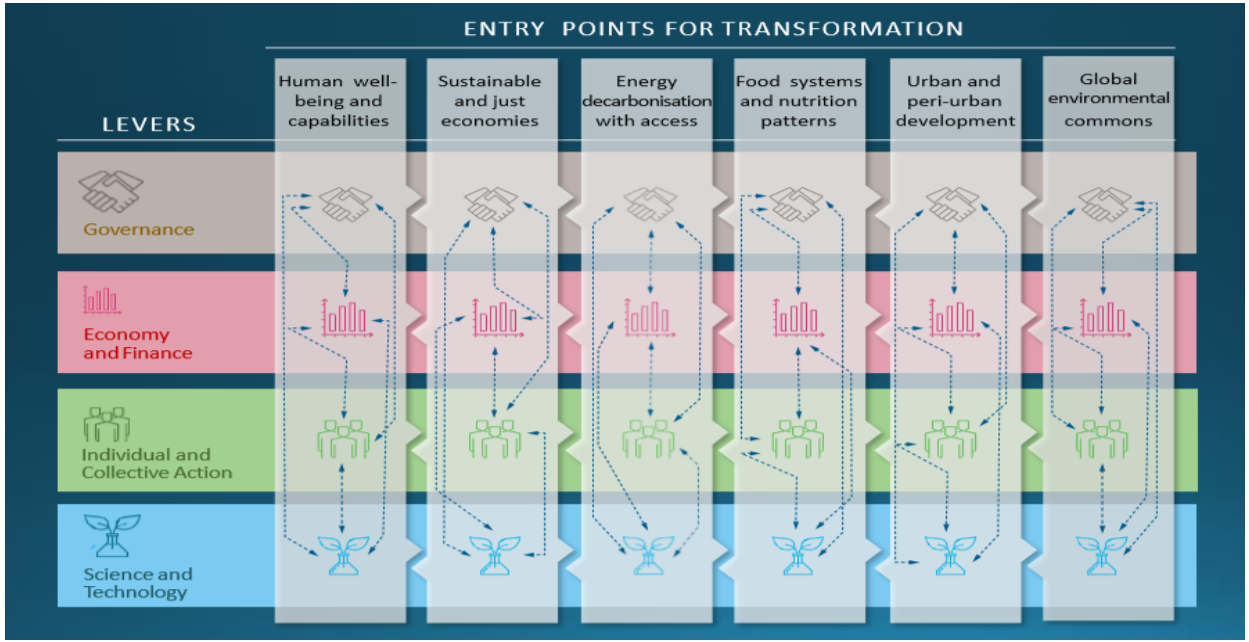
(Credit: IBM)

IBM has made its AI platform 'Watson Assistant for Citizens' on the public cloud. It helps citizens understand and respond to common questions about COVID-19.

Watson Assistant for Citizens automates responses to frequently asked questions about COVID-19 on topics such as symptoms, testing and protective measures.

While this crisis is imperiling progress towards the Sustainable Development Goals, it also makes their achievement all the more urgent and necessary. Moving forward, it is essential that recent gains are protected as much as possible and a truly **transformative recovery** from COVID19 is pursued, one that reduces risk to future crises and bring much closer the inclusive and sustainable development required to meet the goals of the 2030 Agenda and the Paris Agreement on Climate Change. ……**it will require a surge in international cooperation and multilateralism**.

A new model for integrated implementation of SDGs



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A Transformative recovery

With its capabilities of combating diseases, AI and Big Data are proven to be accelerator for sustainable development.

- **Good for humanity and its environment**
- **Fairness, inclusiveness and public awareness**
- **Privacy and data integrity**
- **Open and sharing**
- **Transparency and accountability**
- **Peace, safety and security**
- **Collaboration**

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***Engineering** for Sustainable Development*