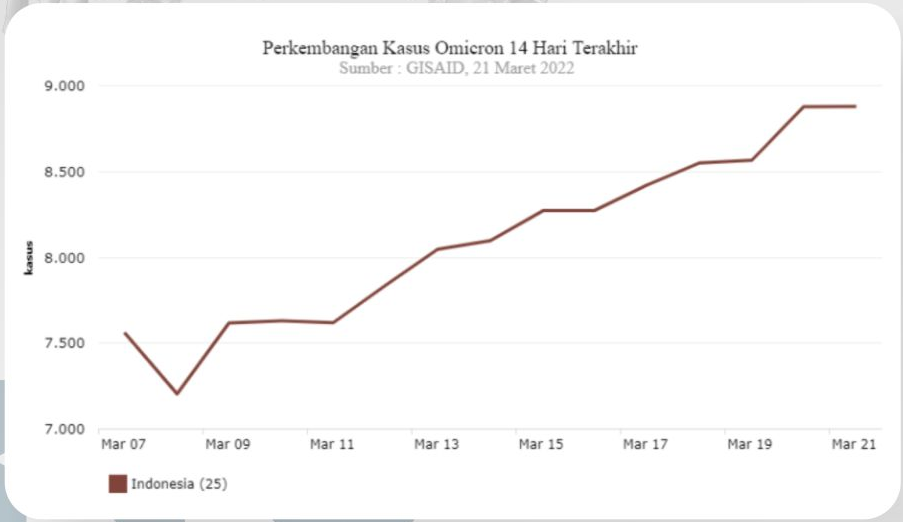
GDSC Hackfest Indonesia 2022

apProkes

MeoCon Team

Ahmad Aziz & Putri Nurhaliza

Indonesia's Covid-19 Highlights

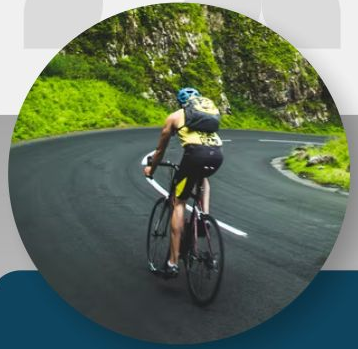


The total number of COVID-19 cases from the beginning of the pandemic has been recorded at 5.93 million data cases as of Wednesday, March 16, 2022, and today **there are still 13,018 cases increasing.**

The four provinces with the most additions today are **West Java, Central Java, DKI Jakarta, and East Java.** The four regions are the areas with the densest economic activity in Indonesia.

Omicron Cases in Indonesia grew **9.67 percent weekly.** This new evolution of the coronavirus has a higher transmission rate. Indonesia become **the country with the highest number of Omicron cases in Southeast Asia.** GISAID noted that the development of the Omicron variant of Covid-19 cases in Indonesia reached 8,880 cases as of Monday, March 21, 2022.

Correlation with SDG



SDG 3

Good Health and Well Being

The COVID-19 pandemic has had a huge impact on all sectors of life. It has disrupted us to actualize sustainability of Good health and Well-being (SDG 3). We are required to increase our attention to COVID-19 health protocols such as wearing masks, physical distancing, and restricting maximum capacity in a room to avoid transmission of the virus.

SDG 9

Industry, Innovation, and Infrastructure

Mission "Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation"

Moreover, we still need to "make a move" to maintain sustainability in all sectors of life. We can't do everything just from home. But keep in mind that we have to make sure our workplace is safe. In fact, there are still many people who violate health protocols. This challenges us to innovate through technologies to implement a system that can check health protocols in buildings/rooms while reaching our goals in Industry, Innovation, and Infrastructure (SDG 9).

Body's Temperature Detection

Measure the body temperature of visitors before entering. Allowed if below normal limits.

Hand Sanitizer Detection

Visitors are required to use hand sanitizer to enter

Introducing Solution

apProkes

A set of tools to **check the implementation of health protocols before people are in public places.** Starting from masks, cleaning hands with hand sanitizers, checking temperature, and monitoring the number of people in the room. Approkes are installed at the entrance of the building.

Visitor Number Monitor

Monitoring the number of people in the room in real time so as not to exceed capacity.

Mask Detection

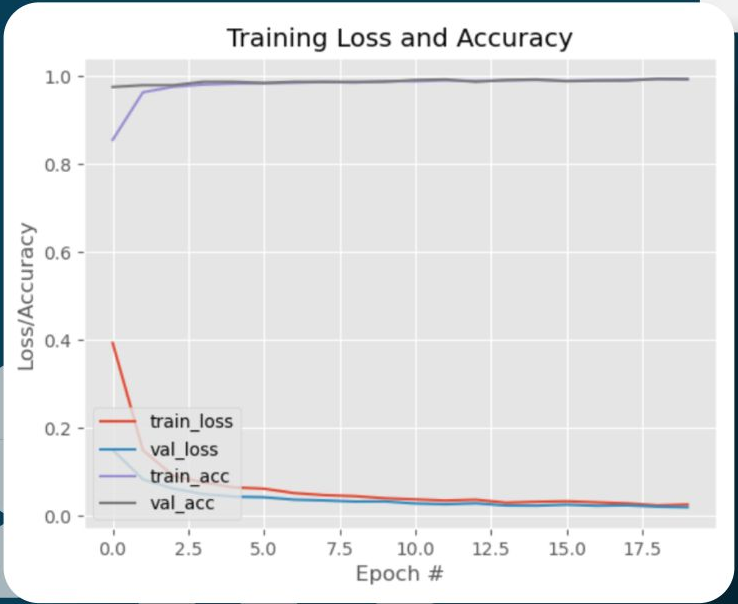
To detect whether the visitor is wearing a mask or not with AI Camera

Mask Detection

Use dataset of people wearing and no wearing mask from Kaggle and Face detection model from caffle model

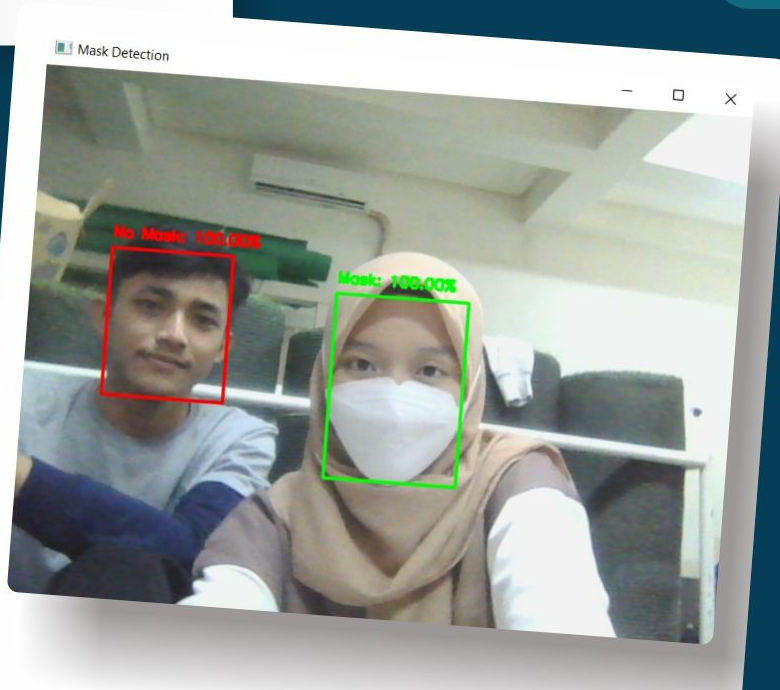
How it works?

- Train the dataset with Tensorflow to return mask detection model
- Process the model and return the output with OpenCV-Python



The accuracy rate of the training process is

98,576%



Video Demo Produk

Technology Used

Artificial Intelligence

TensorFlow is used to detect mask use via camera with AI Computer Vision

Database

Firebase is used to store real time data from IoT systems

Microcontroller

Arduino is used as sensor controller and module and ESP32 is used as IoT Gateway which communicates with server and database

Development Potential

After design the product (hardware and software) with better UI/UX to simplify the installation and usage, there are 3 cycle as product roadmap of Approkes

Cycle 1

Cooperating with PeduliLindungi

Objective:
Integrate with the check-in system in PeduliLindungi and completes visitor data such as vaccine status, Covid test results, and others.

Cycle 2

Cooperating with crucial and public places in Indonesia

Objective:
Integrate with embedded systems for application in airports, railway stations, offices, schools, markets, malls, and public places to ensure that public safety guidelines are followed

Cycle 3

Business Opportunity as Technical Facilities for Events

Objective:
With a seamless and integrated system, Approkes can turns into a promising business opportunity. Cooperating with event organizer for weddings, birthday parties, government and private events.

Further Impacts

Reducing Physical Contact

All systems are integrated and work automatically, thereby reducing physical contact because they do not require guards to check masks, temperature, and use hand sanitizers. Data from the system is always updated in real time so that it can be monitored by admins and visitors who will come to the location.

Build resilient infrastructure with foster Innovation

With innovations that can make it easier for people to carry out their activities, Approkes help implement SDG Point 9. The fact that the areas with the highest increase in Covid-19 cases are those with the densest levels of economic activity, Approkes can help the economic sustainability with innovation.

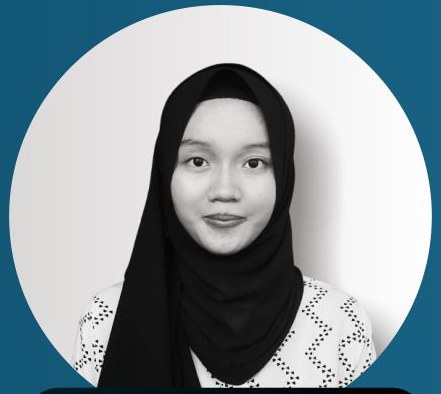
Maintain health and well-being

With advanced technology, Approkes consistently promotes COVID-19 health protocols, consisting of wearing masks, physical distancing, and restricting maximum capacity in a room to avoid transmission of the virus. We can't control the transmission of Covid-19, either stop it. But, we can adapt by build foster innovation

MeoCon Team Members

Ahmad Aziz

Electrical Engineering, ITB



Putri Nurhaliza

Informatics Engineering, ITB

You can visit this repository to get the program

https://github.com/ahmadaziz6720/hackfest_meocon