Under the supervision of: Dr. Mahmoud Khalil.

Organizers: Eng. Ali Osama. Sponsors: IHub

Sponsors: IHub

Department: Computer and System Engineering

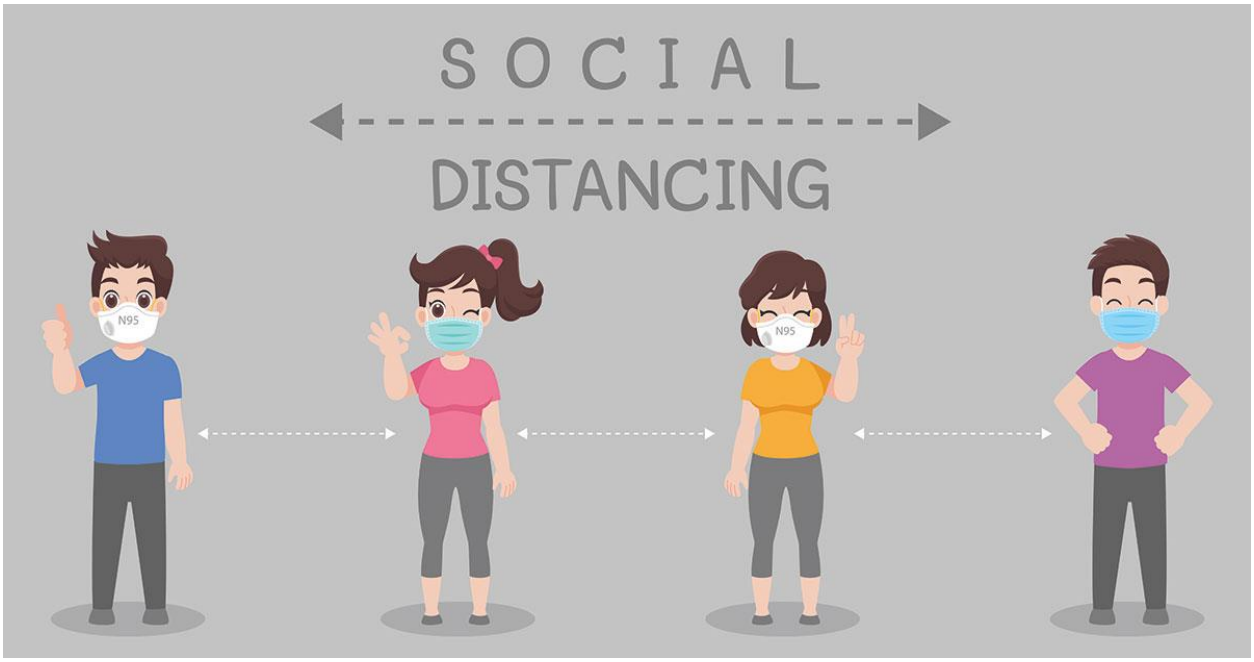
Team Name: Social Distancing

Team members:

Alaa Atef
Tarek Khaled
Tarek Mohamed
Abdel Jalil Nasser
Mostafa Emam

Social distancing for coronavirus (COVID-19)

Everyone must practice social distancing to slow the spread of coronavirus.



Keep your distance

One way to slow the spread of viruses, such as coronavirus, is social distancing (also called physical distancing).

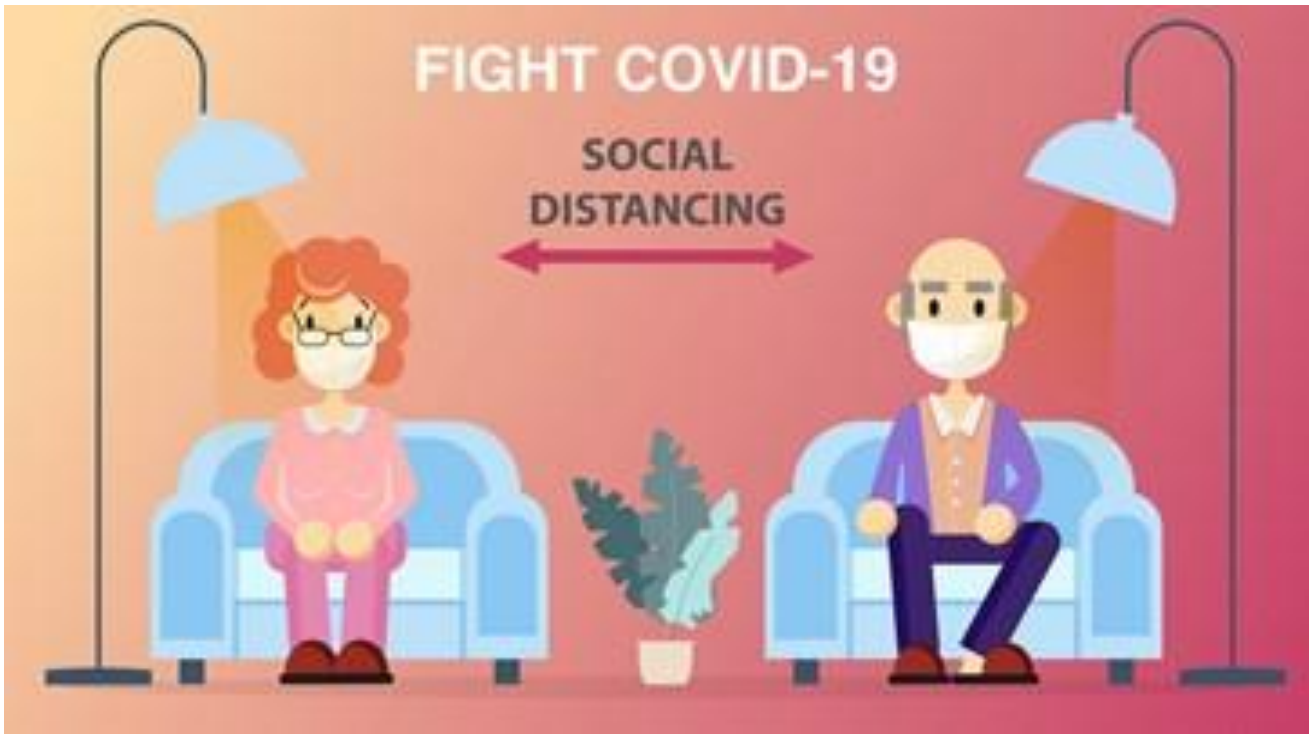
The more space between you and others, the harder it is for the virus to spread. Coronavirus is most likely to spread from person to person when we come into close contact with one another .We can all help stop the spread by keeping our distance. This means do not shake hands, or exchange physical greetings, and wherever possible, stay at least 1.5 meters away from others .It's also really important to practice good hygiene, especially after being in public places. Together we can help stop the spread and stay healthy

In public

Social distancing in public means people:

- stay at home and only go out if it is absolutely essential
- keep 1.5 metres away from others
- avoid physical greetings such as handshaking, hugs and kisses
- use tap and go instead of cash
- travel at quiet times and avoid crowds

- avoid public gatherings and at risk groups like older people
- practise good hygiene



Project description:

In our project, we want to help organizations to which a great number people go every day to monitor the distances between people in order to slow the spread of coronavirus.

These people stand in queues until their turn comes. These queues must not violate the social distancing rules.

Using a camera, a computer and image processing techniques we try to monitor the distances between people and release warnings if this distance is violated.

How can we apply this project?

We realize it is hard for us to apply the project as we think now.

If we are applying this to a real-world scenario .we can work on Raspberry Pi and build a complete dynamic system. The system will consist of the camera, the Raspberry Pi, LCD and other components. Raspberry Pi natively supports Python programming and interfacing with components such as a camera and LCD, LED, etc., is cakewalk compared to other modes of embedded programming. Unfortunately, we do not have the Raspberry Pi and the other Components to implement the whole idea but in this section, we are just trying to offer a suitable suggestion to any capable organization to apply this project.

The circumstances that the world is going through right now imposes on us to take serious actions to help stop the spreading of the virus and use every method available to achieve this purpose.

We can apply this project starting with the most crowded places in the country, these places are most likely to have serious problems….we can start implementing scanning cameras that take accurate pictures of the crowd with every possible detail so we can do some processes on these images and use it to aware the crowd.

After receiving all these images from the cameras, our code is going to perform some processes and analysis to these images such as calculating the distance between the individuals to make sure that they didn't cross the appropriate distance that the WHO determined which is approximately (six feet).

Project plan:

1-Detect all people by segmentation.
2-Calculate distance between every person.
3-Check distance if less than 1.5 meter.
4-Send warning message.

Input: Recorded video.
Output: if distance less than 1.5 meter, send warning.

Implementation Considerations:

Backend:

Will be implemented using python, opencv , tensorflow.

Frontend:

Still under search.