CONTROLVID-19 / User Manual

*This user manual is written for the **single-door** version only.*
IMPORTANT NOTE : If the mounting will be done by staff, you may skip to *First Impression* step. Else, read carefully from the beginning.

Before You Begin

First, check the contents right after unpacking. The content list should be as following :

- 1x Surveillance Subsystem
- 1x Temperature Measurement Subsystem
- 1x USB Type-A Male to USB Type-B Male Cable
- 1x Linear Actuator w/ a Servo Motor
- 2x HC-SR04 Ultrasound Proximity Sensor*
- 1x Magnetic Sensor*
- 1x Hinge Lock*
- 20x Screws*

**According to the product purchased (single-door or dual-door), amounts of these components may vary.*

Assembly

Before you begin, make sure that there is no bulge to disturb the linear actuator on your gate.

1. Mount the linear actuator and the hinge lock on the gate using screws. To be convenient, do not install the lock module higher than waist level.
2. Mount the magnetic sensor on the gate such that the dummy part (the part without any connection) is mounted on the moving surface.
3. Install the Temperature Measurement Subsystem on a fixed surface. It is better to install the module on chest level since the measurement is taken from palm.
4. Install the proximity sensors back to back. One sensor must be orthogonal to the entrance. On the other hand, the other sensor must see nothing except intentional interference.
5. Put the Surveillance Subsystem on a fixed surface with a height between chest and waist level.
6. Make necessary connections between the Temperature Measurement Subsystem and the rest. Be careful, **do not connect anything to the Surveillance Subsystem including the power cord.**

Initialization

1. Connect Type-B edge to the Temperature Measurement Subsystem and Type-A edge to a computer with Arduino IDE software installed.
2. Open the file with *.ino* extension.
3. Configure the threshold values for the proximity sensors according to the environment they are built in.
4. Debug the configured file and upload it to the Temperature Measurement Subsystem.
5. Power up the Surveillance Subsystem
6. Connect Type-A edge to the Surveillance Subsystem.
7. Start the Surveillance Subsystem. (This may take a while.)
8. Run the main program.

After running the program, you will see a screen showing the serial port connection is establishing and the program is ready to start. Please keep in mind that, the interface will ask for a headcount quota ; hence while deciding on this quota, follow the social distance regulations announced by the officials.

First Impression

From now on, your system should be ready to use. You should see that the video stream in the Surveillance Subsystem is live.
On the other hand, you should observe that the Temperature Measurement Subsystem is active and **Show Your Mask** is displayed on the 2x16 LCD screen.
Initially, the gateway should be locked since the system locks the door automatically just after it starts.

1. Please proceed to the Surveillance Subsystem with a mask and observe the following cases on the main display :
   (a) No Mask
   (b) Inappropriate Mask
   (c) Appropriate Mask
2. When the system sees a user with appropriate mask, the frame is captured instantly. Now, you should see **Please, check your temperature** warning is displayed.
3. The Temperature Measurement Subsystem works the best between **2** to **3** centimeters range. Show your palm to the Temperature Measurement Subsystem within the optimal range.
4. The temperature margin is decided according to the World Health Organization standards. The margin is pre-defined as 35 °C - 37.5 °C.
5. When the palm temperature is detected, the measured temperature is displayed on the 2x16 LCD screen.
6. If the palm temperature is within the pre-defined temperature margin, the gate should be unlocked.
7. The door stays unlocked until one of the following cases is carried out :
   (a) The door is opened and a passenger is entered.
   (b) The door is not opened for **15 seconds**.
   (c) The door is opened ; but no one has passed within **15 seconds**.**

   ***A short beep sound warns the staff that the door has been left open and it should be closed immediately.*
8. Now, you may proceed through the gateway. Please keep in mind that the door must be closed after your passage is completed.
9. The initial headcount is asked by the interface at the beginning. For simplicity, it can be assumed as **zero**.
10. After your passage is completed, the headcount must be increased by **one**. You may observe the new headcount on the Temperature Subsystem display. When the whole system is in stasis, the headcount is displayed on the 2x16 LCD screen continuously.
11. Now, you may exit by showing your hand to the *blind* proximity sensor. However, if the door is unlocked but not opened, it will be locked again after **15 seconds.**
12. After you exit through the gateway, the headcount must be decreased by **one**. This decreasement can be observed through 2x16 LCD display.
13. If the previous steps are passed smoothly, your CONTROLVID-19 is intact and ready to use. ***CONGRATULATIONS.***

WARNING

1. This system is designed to be contact-free. Please do not touch the sensory areas.
2. **Do not** plug out the power cord and the serial connection USB cable while the system is running.
3. **Do not** force the linear actuator to open. The servomotor is not designed for externally applied torque.
4. **Do not** disturb the enclosures of the modules. If you think that there are any hardware-related issues, please contact with the staff immediately.
5. If the main display is not working properly, you may use an external screen via mini HDMI. However, if you cannot start the external screen, the Surveillance Subsystem might need a firmware alteration. In that case, please contact with the staff and request a firmware alteration.
6. If the 2x16 LCD screen is not working properly, the internal connections may be damaged. In that case, please contact with the staff and request a hardware check.
7. In order to solve an issue by restarting the whole system, please **do not** unplug the power cord at first. You should shutdown the Surveillance Subsystem first via the Raspbian. Then, you may unplug the power cord.