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SmartCow

SmartCow defense COVID-19 by set AI models onto Aetina edge AI platform

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About SmartCow |
AI-engineering company that specializes in building deep learning models, AI-IoT HW, and making HW/SW integration seamless.

Introduction

The Healthcare system is the foundation of human being culture, and every innovative medical research shows its supports and values to continues and expansion. Humans have been attacked by pandemic several times historically, the development of medical science

combined with technology to release the damages and suffering by disease, also help to prevent the massive infection from happening.

One of the most effective and most basic methods of respiratory disease prevention is pathogen quarantine.

The most accessible and self-defense manner is face mask protection. No matter in the hospital, other medical environments, school, transportation, or any other public place, face mask could prevent about half of the germs, a surgical face mask could dispute up to 90% of bacteria and an N95 face mask could resist up to 95% of the viruses.

So, wearing a face mask should be critical when disease happens; it is not only to protect oneself from being infected but also to stop the virus expansion from human to human. Moreover, during pandemic suffer, to ensure all people are setting a restricted line of themselves, to scotch more infection.

Challenge

Once an epidemic is out of control, the medical workforce will get tighter, and all the medical supplies will soon become deficient. To do more in a limited resource should be necessary. Besides the core treatment for infectors such as medicine, ICU cure, or the bacterin, the outer core that suit for all human being -- keep distancing, self-defense, and protecting suit/equipment. However, the methods of general treatment during the pandemic period may need shutting to enforceable. With the limit of human resource and keep the people separated, a related AI model could help.

When it comes to upgrading the original application in industry, employers always want the most budget and efficient way to make the plan done, as well as the owner in the medical field. Therefore, a small and flexible device is preferable. And to ask for fits in a limited place easily and will not need to change the dispose of equipment, various I/O support to keep the device in the little box. Also, with a visual AI idea, a high-resolution camera could ensure the accuracy of image capture.

Solution

SmartCow realized the situation during the pandemic suffer. They dedicated to a multi-function AI detection algorithm that including six types of AI models, including social distance estimation, masks detection, gloves detection, medical apron detection, medical full-body suit detection, and safe sneeze action classification.

NVIDIA® Jetson™ module is suitable for edge computing and well-made for various situations. Combine with Aetina carrier, a small form factor platform set the upgraded deployment easily. Aetina AN110-NAO platform has functional I/O ports on the carrier could send to audio out(I2S) to warm the incorrect detect immediately, and it supports 1x 4K camera or 2x FHD cameras, which is capable for a high-resolution camera could ensure the accuracy of image capture. With these supports, the application can be made in one single device.

Results

Aetina AN110-NAO platform meets up the requests from SmartCow idea of the smart medical solution, and it could take one of six AI models separated with the full support of audio out and high-resolution camera. All-in-one solution leaves a flexible deployment to customers to upgrade their original environment.

Moreover, if one AI model is not enough for the situation, Aetina provides an AN110-NX platform with a higher AI performance for a more critical condition as needed. Aetina provided a complete service of edge computing platform ecosystem, speed up the period for the AI developer to set up their applications.