Smart Keyboard/Mouse Switch Robot

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In these days, many software engineers and researchers need to use multiple computers at the same time due to various work requirements. It is very inconvenient to control these computers with multiple sets of keyboard and mouse. The current mechanical keyboard and mouse switchers are manual, which is very inconvenient. If we can design a switcher that can recognize the user's intentions and automatically switch the keyboard and mouse control signals to the computer in use, it will be much more convenient. The intelligent switcher in this project can automatically switch the control signal of keyboard and mouse to the computer users are using, thus enables users to share a set of keyboard and mouse when using multiple computers. The intelligent switcher adopts the overall solution based on deep learning and a neural network, with the camera as the sensor, Jetson TX2 as the microprocessor, STM32F103 as the microcontroller and Keyboard & Mouse Switcher (KVM switcher) as the executive mechanism. The Jetson TX2 will read the image captured from the camera, and the image of an individual’s face will be recognized by MTCNN neural network. Afterward, the VGG-Net network will be used for the facial orientation recognition. Finally, the signal will be sent to the STM32 microcontroller which will control the KVM switchers so the signal of keyboard and mouse will switch to the currently using computer. Through a practical application test, the intelligent switcher can accurately and quickly switch man-to-machine interactive equipment through face recognition.