Modular Wireless Xbox Kinect Data Transfer Device

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The Modular Wireless Xbox Kinect Data Transfer Device project, abbreviated MWXKDTD, seeks to alleviate issues a Microsoft Xbox Kinect user may experience when attempting to operate multiple devices with their Personal Computer. To eliminate the need to install a PCI card for each Kinect device, we developed a modular solution, by transmitting a virtualized Kinect image capture from a Raspberry Pi to a host PC. Each operating Kinect is connected to a Rapberry Pi, maximum of 4 Kinects per Pi, where a program interface collects image data received from the Kinect. The data packets are transmitted to the host computer via WiFi connection on the same local area network.

The idea stems from a previous computer vision project using Microsoft Xbox Kinects for facial recognition. The team struggled with functioning multiple Kinects on a single PCI card, therefore, they had to alter the hardware of the PC to install more PCI cards. Each Kinect requires a unique serial/device ID which cannot be achieved on the same USB bus. Also, each Kinect must utilize the full power capability of a PCI card.

The outcome of our project is delivered as described. Our 3 Kinects send raw image data to a Raspberry Pi device via USB connection, then, our Raspberry Pi wirelessly transfers the image data packets at 30 FPS over a local WiFi network to the host PC.

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