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Author Kuang-Han Chang
Author's Email Address No Public.
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Abstract
In order to help the disabled to communicate with other normal people and make it easier for special education staff to learn sign language, we hope to complete a set of sign language recognition system that matches the way we use in Taiwan. The first step is to create a new kind of data glove which meets our requirement.
The design is on the basis of micro-controller hardware, which adapts built-in A/D chip (PIC16F877) to measure the changes of gestures. Then those information and data could be transmitted to the computer through the interface of USB2.0 controller chip.
We designed a pair of data gloves with USB/RS232 high speed interface, integrating with the software packages, e.g. LabVIEW, EON studio, and 3D studio MAX etc. Neural network algorithm is also applied to program the recognition engine. The recognition results about 26 English alphabet A~Z gestures can be displayed in 3D animation of hands movements on the monitor and play text/voice output in the mean time. With the help of integrating all hardware with software, a complete 3D Taiwan sign language recognition system is implemented to help the hearing disabled to solve the communication problem with the other normal people.
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