A Novel Gesture Decoding Sensor for the Evolution of Cost Effective Electronic Smart Gloves

Khan, Arqam Ali (School: Islamabad Model College for Boys, G-10/4)

In the world people with disabilities face many problems in the society. Many people with such disabilities can’t afford to buy expensive gadgets and devices for their aid. Therefore, we have developed a new technology of low cost speaking gloves which will help the mute and deaf people to communicate normally with others in the society. Our main goal is to make the device highly low cost and reliable for converting multiple sign languages like Pakistani Sign Language, American Sign Language and others. Furthermore, it is possible to use the same glove technology in variety of other applications ranging from augmented and virtual reality to telesurgery (Remote Surgery), heart attack detection and defense. The glove uses a special type of bionic sensors for extracting the signals from hand. The bionic sensor contains two electrodes of zinc and graphite for extracting the signals. This sensor produces a voltage signal when came in contact with skin due to redox reaction in the presence of hand moisture. The signal of sensor changes with pressure and hand movement as well. Therefore, the bunch of sensors attached in a glove produces different unique signals for specific hand gesture or movement. These signals goes to micro controller and further many operations can be performed easily, like Sign language to Speech conversion and controlling robotic arm for telesurgery. This bionic sensor also changes its signal in certain medical conditions due to sweat or other reasons, making it possible for early detection of certain diseases like heart attack. The gloves are highly inexpensive without affecting its quality because of using bionic sensors made from cheap material. Therefore everyone will be able buy and use that revolutionary device.

Awards Won: