Gesture Recognition System (GRS)

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Nowadays, systems for hand gesture recognition become more and more required due to the replacement of 2D systems and the way of interacting with them by the new 3D and holographic technologies. The purpose of this project was to create an effective, low-cost, wearable gesture recognition system that will make it possible to control devices, to manipulate virtual 3D space using 2D systems, and provide efficient gesture recognition. Magnetometer and accelerometer sensors were used to determine hand position in space. The mathematical model of the hand was used to calculate and display information. Neural network was used to train the system in gesture recognition. It has been observed that at the same latitude, the intensity and the angle of magnetic induction vector is relatively constant, which makes it possible to detect the inclination of sensors on X, Y and Z axis. The results of the project represent a functional system for hand gesture recognition, which was integrated with existing Linux operating system. Also, a tool for translating sign alphabet was created in order to help disabled people. The system was tested and used for presentations. The feedback was positive. Gesture recognition system can be used in many fields: hardware control, 3D modelling, education, medicine, auto, sports, arts, video games, robotics, as well as in helping disabled people that is one of its main goals.

Awards Won:

Fourth Award of $500