REAL-TIME COMMUNICATION SYSTEM FOR THE SPECIALLY ABLED

LITERATURE SURVEY

An IoT based device to facilitate communication for the disabled people was explored by many researchers (Pritesh Ambavane et al, 2020)[1] The proposed sensor-based system stored values in a microcontroller which were then transferred wirelessly to a mobile device. These values were then compared with the data stored on the device to display the corresponding text, later converted into speech using a text-to-speech conversion tool.

A Dumb's Communication System that transforms sign language into audio was proposed (Lillian Al Tinnawi et al, 2017)[2] The device utilizes EMG electrodes as a non-invasive wearable technology that provides accurate data on muscle motion. The data is analyzed with the help of a software in a separate circuit, which in combination with a previous database, converts the gesture into a real-time audio voice, delivered via a speaker. The circuit incorporates a Text-to-Speech (TTS) conversion unit for interpreting the matched gestures.

A gesture-based device for the communication of a deaf and dumb person has been implemented (Pallavi Verma et al, 2013)[3] A pair of gloves with a flex sensor is used to capture the movement of the user and is converted into a voltage with the help of the voltage divider rule. The digitized data is transmitted and matched by a gesture recognition system at the receiver, which delivers the matched data as input to an audio device.

A system to facilitate communication between the disabled and the normal person was implemented by a group of researchers (Aditi Kalsh et al, 2013)[4] The system is based on static hand gesture, captured using web camera processing and stored as a DCR file. Edge detection is performed using the canny edge algorithm followed by the wavelet family method to recognize the tips of the fingers. The gestures are then matched with a set stored on a database to produce the final output.

REFERENCES

[1] Ambavane, Pritesh & Karjavkar, Rahul & Pathare, Hemant & Relekar, Shubham & Alte, Bhavana & Sharma, Neeraj, "A Novel Communication System For Deaf And Dumb People using gesture", ITM Web of Conferences, 2020, 32. 02003. 10.1051/itmconf/20203202003.

[2] Tinawi, Lillian & Harb, Reem & Nasser, Hassan-Roland & Zaylaa, Amira & Hamawy, Lara, "A New Dumb's Communication System", 2017.

[3] Verma, Pallavi & Priyadarshani, Richa, "Design of Communication Interpreter for Deaf and Dumb Person", International Journal of Science and Research, 2013, 4. 2640-2643.

[4] Aditi Kalsh and N.S. Garewa, "Sign Language Rcognition System,",International Journal of Computational Engineering Research, Vol 03, Issue 6, June 2013.