



CONSOLATION

Wrist/Hand Band with visual indicator for vehicle sound for hearing impaired mechanics

Navkumar Awasthi
Lucknow, Uttar Pradesh

Navkumar (50) is a motor mechanic and himself a hearing and speech impaired person. Being a mechanic he had a lot of problem understanding the sound of the vehicle, hence he has thought of a hand band with visual indicators for the sound and is in the process of developing it. This would be attached to a six channel electronic stethoscope.

His father was a freedom fighter and had the same impairment. He completed his studies as a motor mechanic in an ITI and started working as a motor mechanic in a local service centre. Initially he faced a lot of problems in communicating with people and understanding the sounds of the motor vehicle, so he had to come up with innovative ideas to help himself. In due course, he conceived ideas for a vibration horn, sign to text converter, and speech to text converter as well. He has wife and a son in his family.

Being hearing and speech impaired Navkumar had to face a lot of problem trying to understand and deciphering the problem in vehicle's engine. To help him with this, he embedded a Digital Storage Oscilloscope (DSO)* with a six channel electronic stethoscope**, which displays the sound coming from the vehicle in form of graphs, which was easy for him to understand. However, the setup was quite bulky for him

to carry around whenever needed. Hence, he started thinking of a compact wrist/hand band, which would have a LED & a small screen for graphical display.

The idea

The idea is to have a hand worn device with LED, whose intensity would change with the intensity of sound, along with a graphical display. The output of the six channel electronic stethoscope will be intercepted by the device and translated into the LED and visual input on the hand worn device. Thus, it will be helpful for any hearing impaired motor mechanic.

Six channel electronic stethoscopes for differentiating sounds of automobiles are available but not for the hearing impaired persons. They are used along with oscilloscopes for visual displays. However, the setup is not compact and portable or that can be worn easily on the wrist/ hand.

Navkumar is working on his idea, which when completed will be very helpful for the hearing impaired to recognise sound in form of light intensity, vibration and which will be easy to carry along as well.

*Oscilloscopes are electronic test instruments that display varying voltages against time

elapsed in a 2-Dimension graph like form. Other signals (such as sound or vibration) can also be converted to voltages and displayed. Digital Storage Oscilloscopes (DSOs) are a kind of oscilloscopes, which store and analyse the analog input digitally and then reconvert the same to analog for display on a Cathode Ray Tube (CRT- old bulky TV type screens) or a Liquid Crystal Display (LCD- thin new TV type screens).

**Six channel electronic stethoscopes are designed to listen up to six different under-chassis locations of a vehicle respectively at a time. These can be used to listen to noises that cannot be duplicated in a workshop. The stethoscope comprises, in addition to other components and sensors/super sensitive microphones, a headphone to shut out the ambient sound.