'THIRD EYES' SHOES: THE SIGHT SENSE THROUGH SMART SHOES FOR DISABLED PERSON

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Abstract. This is a Proposal for a smart personal device coupled with Android Mobile and Various sensors to provide the safe Path for Blind Peoples. By Producing Vibrations, Alarms, Voice notes through Smart Mobile, they can alert about their Path status and Obstacles. This proposed Device may helpful for the disabled Person to take correct decision to move in their path with own sense. Various sensors, Camera, GPS are combined together and Placed in shoes for predicting obstacles in a path. Once a problem or obstacle is found by device, it will produce warning to alert the person, hence he may be alerted and the decision may take individually with his sense. The duties of blind person's eyes will be done by this smart device in shoes as it can watch the path and give warnings. Hence the Name of smart device is "Third Eye" in Shoes.
Keywords: *shoes for disabled, safe shoes, blind peoples, IOT based shoes, path sensor enabled shoes*

Short Communication

The IOT application with Ultrasonic sensor, Front Camera, GPS and Vibrator options are there in this Proposed Smart device which will help the disabled person who wears the shoe (Smart device) to make comfort to walk without collision and the device is very much helpful to walk in correct track with the help of GPS. The Input elements like sensors and detecting sources connected with a micro controller and the same Processing unit is connected with Android mobile also. The Device is powered by its autonomous power charger through Electro mechanical Conversions. The Device has its advantages over the available aids for blind peoples that the Autonomous and smart device with optimum controls and précised Outputs (Rego, 2023; Khder et al., 2017; Alam et al., 2015; Prasanthi and Tejaswitha, 2015; Sadi et al., 2014).

Discussion

The Proposed Smart device hasthe control system constructed with Sensors, Camera, GPS and Android Mobile and Applications Connected as Input to Microcontroller and Various Output devices like Vibrator, Alarms, and Output in Mobile phone. The smart device have GPS and it is linked with Android mobile, Through the Map Application, the path will decide by the user and Ear phone/speaker of Phone will continuously give voice notes through phone. If any changes or wrong decision will take by the user, then the application will detect it by GPS in shoe and give warning as Voice notes and Smart device has the ability to produce Vibration in the shoe part to warn the person about obstacle in his path before certain distance. Camera is also there in front portion of shoe

that may act as image sensor which give information to android mobile and the Images may convert into Voice notes or May understand by users through touch pads.

Micro controllers may use as the Controlling device for control of input and Output devices. Using Micro controller, the device will have optimum control on both Input and Output Sides. A 12V DC source is connected as Power Source to the Circuit. Additionally, Movement based charger for Power source also connected with circuit for continuous and automatic charging of Batteries. Depends upon the motion (due to walking) the electrical energy may produce with help of magnets and coils. The Proposed device is an Application of IOT which uses the contributions of both android software in mobile as well as the connected control circuits. Totally the device is an embedded system which has its own power source, sensors for input, controlling device, user's manipulating elements, various output displays, vibrators and sounds. The Structural view and block diagram of the proposed smart device is shown below (*Figure 1* and *Figure 2*):

Figure 1. *The structural view-Proposed Smart Device: Third EYE Shoe.*

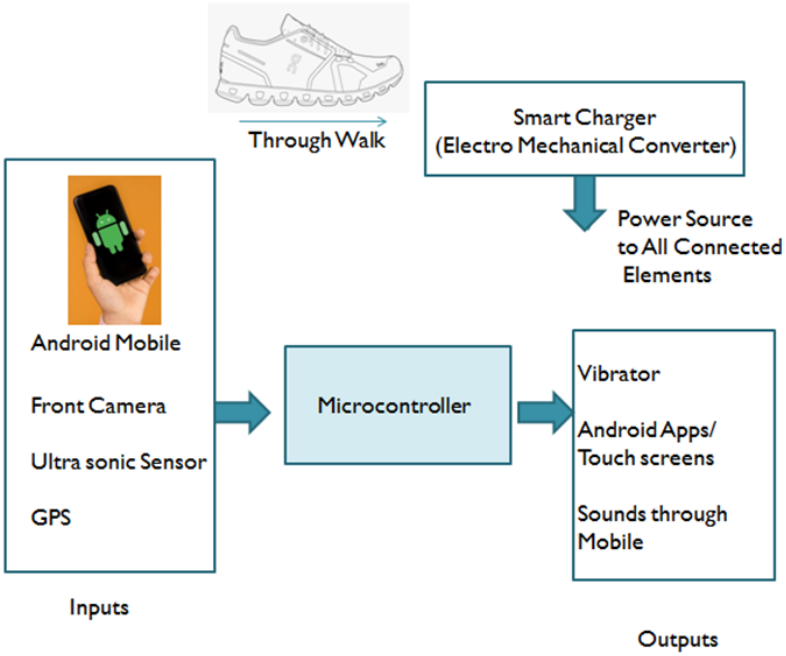

Figure 2. *Block diagram-Proposed Smart Device: Third EYE Shoe.*

Conclusion

This Proposed Smart device for visually impaired persons is a project on embedded systems where the Android and hardware were integrated each other so that to create an user friendly environment for the visually disabled persons. All the Features combined together to make this Proposed device as autonomous and smart to help the disabled persons to get the sense for walk as "Third Eye". The advantages would be cost effective, user friendly device, efficient and accurate, comfort, auto Charging capability, and less maintenance.

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Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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