Smart Stick for Blind People with Live Video Feed

Suchita Wankhade[1], Mrunali Bichukale[2], Shruti Desai[3], Shraddha Kamthe[4], Archana Borate[5]

[1]Prof.Wankhade Suchita, Dept. of Computer Engineering, TCOER Pune, Maharashtra, India.
[2]Bichukale Mrunali , Dept. of Computer Engineering, TCOER Pune, Maharashtra, India.
[3] Shruti Desai, Dept. of Computer Engineering, TCOER Pune, Maharashtra, India.
[4] Kamthe Shraddha, Dept. of Computer Engineering, TCOER Pune, Maharashtra, India.
[5] Borate Archana , Dept. of Computer Engineering, TCOER Pune, Maharashtra, India.

Abstract - *The ability and capability of vision to human being is an important factor of our life ,but some person whose unable and have lack of vision because they are visually impaired this paper we introduce one smart system which is nothing but smart devise which become helpful for that visually impaired people because of it that person can be detect obstacle with help of it blind stick, also that blind person get feel for when mobile phone get vibration alert or give some oral voice message to that person.*

Key Words: Fall Detection, Infrared Sensor, Live Feed ,Object Capture ,Smart/Android phone,Visually impaired person.

1. INTRODUCTION

Adaptability and flexibility for blind person can be define as ability to displace with conviction and welfare to his domain but it is not happened without science and education of technology we introduced one system which is make useful for blind people with the help of it those people can detect obstacle in front of them and prevent her/himself and familiar or unfamiliar person can also following and track that person from home also ,we get information related to current place of that person for that purpose we build one android application with the help of GPS (graphic positioning system).We can locate that blind person another features like grabbing live video feed (capturing video) ,voice Message all this features are build for smart device .

2. LITERATURE SURVEY

2.1 Voice aided stick for blind person.

Author name:sung jae kana,young ho.

Description-From that reference paper we got concept about new technology as GSP & GSM. Which give facility like tracking the area & use for making device of smart stick for blind people.

2.2 Blind smart system using image processing & embedded system.

Author Name: Zul Azizi Hailani,Schinah Jamalaudin.

Description- We got concept from this reference paper is,for Navigation system has been developed which help to enhance relocation capacity of blind person.this paper gives idea for taking live video of that person $ grab video feed in front of visuality impaired person & this all those things observe by admin itself.

2.3 Smart white Cane: Assistive Cane for blind People.

Author Name:Amirul A_Talib, Mohd Helmy Wahab

Description-we got concept from this reference paper for oral message & vibrate alert when person capture

obstacle with help of smart blind stick,then he/she get aware to it by knowing vibration alert and voice alert which comes from android phone which is carried out by person.

2.4 Electronic Path Guidance for Visually Impaired People.

Author Name:Iwan Ulrich and Johann Borenstein

Description-From this reference paper we got concept like image processing which is required for capturing video feed,with the help methods and algorithm we make some processes on image for capturing it.all processing data is place on the sever side in serialized format.

2.5 Use of Ultrasonic Sensors in the Development of an Electronic Travel Aid.

Author Name- Alex Harold and Chris Gearhart

Description-From this paper we got concept related to latest techniques like sensors which is show differentiate between ultrasonic sensors and infrared sensor,which one is better and also about accelerator sensor,gives info about which is more suitable for our module ,how they perform and how they detect obstacle.

3. PROPOSED ARCHITECTURE

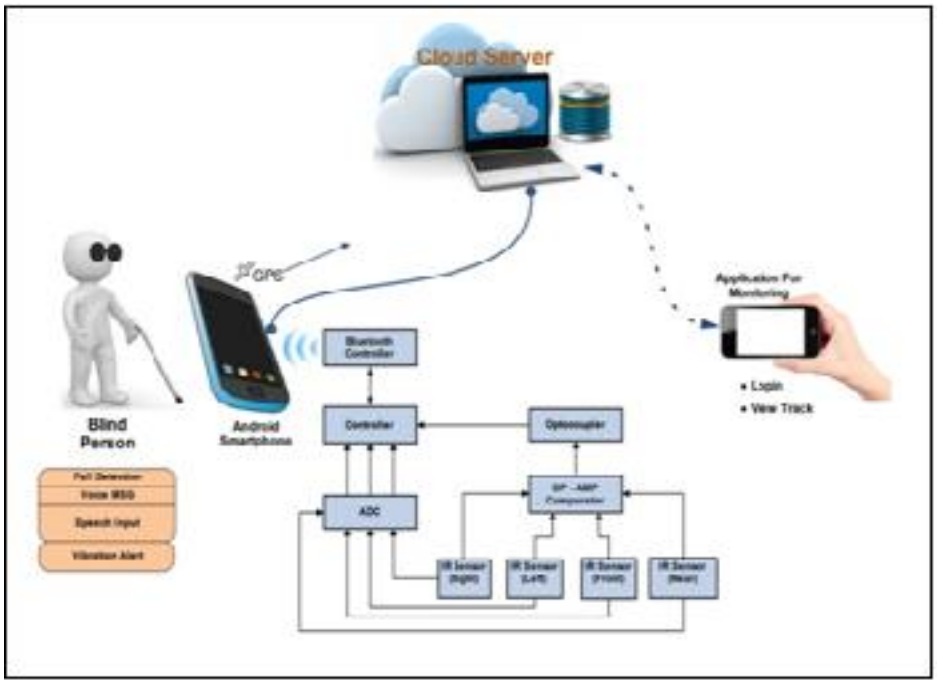

Fig. System architecture

A] Hardware Unit:

Very first is Bluetooth controller device which is use for making connection between hardware and android phone.we use 89c51 micro-controller for controlling all operation /task on hardware unit.we use OP-AMP Comaparator will compare level of voltage value to set voltage value and after matching this value & finally generate result.

B] Smart Phone :

The second component of system is smart phone which is handle by visually impaired person and which contains fast speed internet,accelerate sensor and camera.his component plays an important role,when any obstacle is detected then it

gives alert message or voice message through vibration. If the camera of android phone is on ,through it live capturing of video capturing is done by admin machine.

C] Server:

It is third part of the system .in this connection is establish connection is established between smart phone /android phone and main server through Wi-Fi ,because we use it in LAN network so that we using WI-FI ,all activity which is happened those stored in database. These database containing data is in the form of serialization format and read and write operation is perform on to that data.

D] Admin:

Admin can track that visually impaired people ,current place of that person is track by GPS and GSM ,with the help of it live video capturing is done by admin which observe all the things which is happened with that blind person.The main goal of that paper to introduce one smart system which become useful to the blind person by giving one smart stick,which which capture obstacle in front of that person due to these new features. hence we did one smart device for visually impaired people which help them to move in there surrounding environment with mobility and confidence.

4. IMPLEMENTATION

4.1 Requirement of hardware device and their cost.

ATmega32	220/-
Bluetooth	627/-
ULN2803	25/-
8 MHz	12/-
22pf capacitor	0.50/-
Reset switch	11/-
10Uf capacitor	4/-
Resistor	0.50/-
Pull Up Resistor	4/-
LED	1/-
40 Pin IC Base	8/-
18 Pin IC Base	5/-
PCB Print	750/-
PCB Making	870/-
Power supply Cost	620/-

4.2 Circuit Diagram

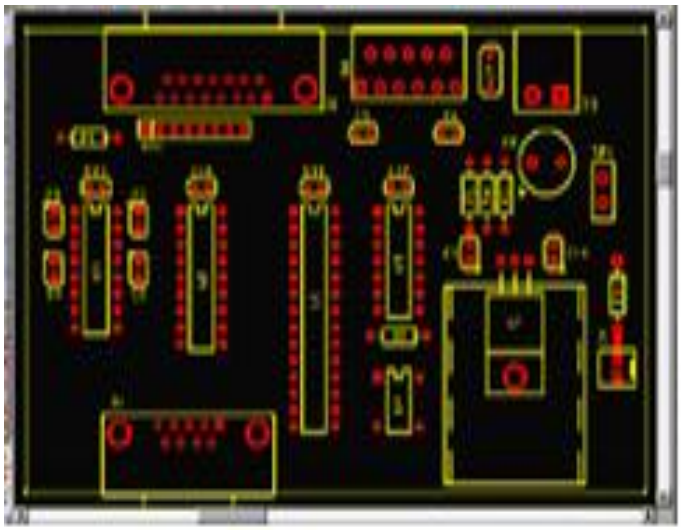

Fig -1: circuit diagram

4.3 PCB is ready after soldering

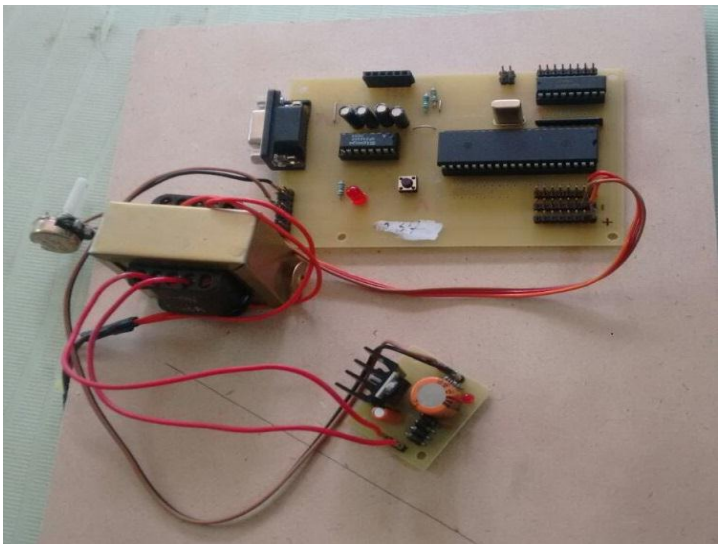

Fig:PCB Diagram.

5. CONCLUSIONS

The main goal of that paper to introduce one smart system which become useful to the blind person by giving one smart stick,which which capture obstacle in front of that person due to these new features. hence we did one smart device for visually impaired people which help them to move in there surrounding environment with mobility and confidence.

6. FUTURE SCOPE

GPS is use for find current location of person .this project is implemented for blind people they can detect obstacle in local area network means only within range by buying IP address we can use that technologies any part of world.

ACKNOWLEDGEMENT

We are taking lots of effort on to this paper but its is not happened without support of respective organizations. We are very grateful in presenting the paper on "Smart blind stick for visually impaired with live monitoring" under the guidance of Prof. Suchita Wankhade. We are very thankful for her valuable guidance. We would like to thankfull to Prof.Dr.S.B.Chaudhari, Head of department of computer engineer. Finally, we express our sincere thanks to our parents which give help directly or indirectly to completion of this paper.

REFERENCES

[1] Sung Jae Kang, Young Ho, Kim, In Hyuk Moon, "Development Of An Intelligent Guide-Stick For The Blind", IEEE International Conference on Robotics & Automation Seoul, Korea, May 21-26, 2001.

[2] Zul Azizi Hailani, Sakinah Jamaludin, "An Electronically Guided Walking Stick For The Blind" University Tenaga Nasional, Malaysia

[3] Mohd Helmy Wahab, Amirul A. Talib, Herdawatie A. Kadir, A.Noraziah, Roslina M. Sidek, "Smart Cane: Assistive Cane For Visually-Impaired People",IJCSI International Journal of Computer Science Issues, Vol. 8, Issue 4, No 2, July 2011.

[4] Johann Borenstein and Iwan Ulrich, "The Guide Cane- A Computerized Travel Aidfor The Active Guidance Of Blind Pedestrians", IEEE International Conference on Robotics and Automation, Albuquerque, NM, Apr. 21-27, 1997.

[5] Chris Gearhart, Alex Herold, Dr. Brian Self, Dr. Charles Birdsong, Dr. Lynne Slivovsky, "Use Of Ultrasonic Sensors In The Development Of An Electronic Travel Aid",IEEE Sensors Applications Symposium New Orleans, LA, USA - February 17-19, 2009.

[6] Abdel Ilah Nour Alshbatat, "Automated Mobility And Orientation System For Blind Or Partially Sighted People",International Journal on Smart Sensing and Intelligent System.