IOSR Journal of Computer Engineering (IOSR-JCE)
e-ISSN: 2278-0661,p-ISSN: 2278-8727, Volume 24, Issue 3, Ser. II (May. –June. 2022), PP 44-48
www.iosrjournals.org

Using IoT devices to enhance the working life of Physical handicap senior citizen women in our society.

Purtee jethi kohli
Jaypee Information Institute of Technology ,Noida sec 62

Dr Deeepak Kumar
Assistant Professor
Department of Computer Science
Banasthali Vidyapith

Abstract: *IoT is well known technologies in present time; its applications are making our life easier and smarter either in houses or outer sides. If we talk for handicap person then IoT is become a tonic which enhance his life so easy because people with disabilities face many problems in their life and feel less respect in our society if this person is women then she faces both problems one for disabilities and other for gender. Her life is just like hale; she will suffer in depression therefore IoT devices have supported to all physical handicap people.*
Keyword: *IoT devices, Physical handicap, women, technology.*

Date of Submission: 02-06-2022 Date of Acceptance: 15-06-2022

I. Introduction:

Internet of Things (IoT) is an advanced technology and intelligence system which use sensors, internet, big data, and machine learning technology to provide complete intelligent systems which support to human life comfortable with safety. Present time lot of industries have produced many IoT devices in market for example, there are 127 new IoT devices connecting to the Internet every second. Consumer electronics have account for 63% of all installed IoT units in 2020. By 2021, the number of IoT devices in homes will rise to 12.89 billion. 24% of current large-scale IoT projects are used in smart cities. 41% of IoT devices will be used in the healthcare industry by 2021 but in this paper we will review about IoT devices which are useful for physical handicap women. . In this paper we will discuss about various IoT applications for physical handicap because a physical disability is a condition in which a part of human's body is affected permanently and in results, person has reduced ability such as walking, moving their hands, hearing loss, blindness etc. A person may be a physical disable by born or due to accidents, brain injuries, or side effect of any medical conditions. There are a large number of physical disabilities, each affecting people differently but not necessarily stop his life from blocking specific tasks but makes them more challenging and face strongly. IoT devices are more useful for those peoples which are disabling.

1. Internet of Things (IoT): A Phenomena in which everything has communicated to each other at anytime, anyplace with anyone is called "Internet of Things (IoT)" as shown in figure 1. It allows human and objects are communicate to each other through network, for example if we talk about our house environment then IoT is provided smart lighting, automatically locking & unlocking window, smarter TV, smarter dustbin every things which are using in daily life are smarter just one click away from us that is we can control everything in house from a single place without much effort. All things are done by sensors, devices and machine learning techniques. Our hardware and software engineers have developed a lot of IoT devices which make smarter with safety to our society in any country

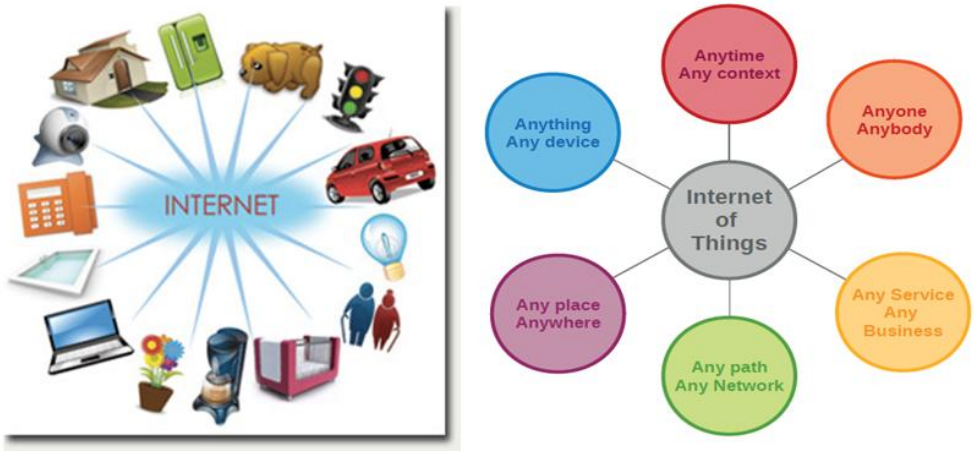


Figure:1

2.1 IOT terms of the cost, complexity, design and efficiency. In this paper, a state-of-the art simple and efficient yet cost effective reconfigurable assisted living system is proposed and implemented which will cater for the needs of bed-ridden patients, people with disability and senior citizens. The distinct feature which makes this implementation unique is its low cost, low power consuming hardware and user-friendly control, hence the user can operate the system without any external assistance. Additionally, the proposed work is a good head-start towards Internet of Things (IoT) concept and provides multitude of input options to the user by integrating cellular communication and Zigbee protocol based wireless devices with internet.

This method of development of wearable technologies has generated considerable interest in the last decade. It opens doors to the emergence of user-centered assistive technologies, which are aiming senior citizens suffering from memory loss. in this paper is centered to introducing the conceptual, behavioural and architectural design of a remote controllable head mounted display. The Indicator-based Smart Glasses are designed to assist senior citizens in daily navigational tasks with the guidance of human remote caretakers. The use of eyeglasses among the senior citizens is quite common, and it derived us to construct navigation interface prototype by implanting a set of light emitting diode indicators on the frame of eyeglasses.

The system Basic components of IoT

The most important components of IoT are sensors, artificial intelligence, network connectivity. A short review of these basic features is given below.

- **Sensors –** The most important hardware in IoT is sensor without sensor IoT is nothings. They act as interface media between standard passive network of devices and an active system of real-world (as shown in figure 2.)

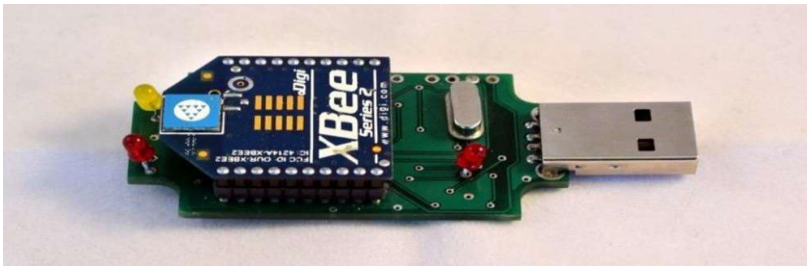


Figure2: Sensor.

These devices consist of energy modules, power management modules, RF modules, RF modules manage communications through their signal processing, WiFi, igBee, Bluetooth, radio transceiver, duplexer, and BAW The sensing module manages sensing through assorted active and passive measurement devices.

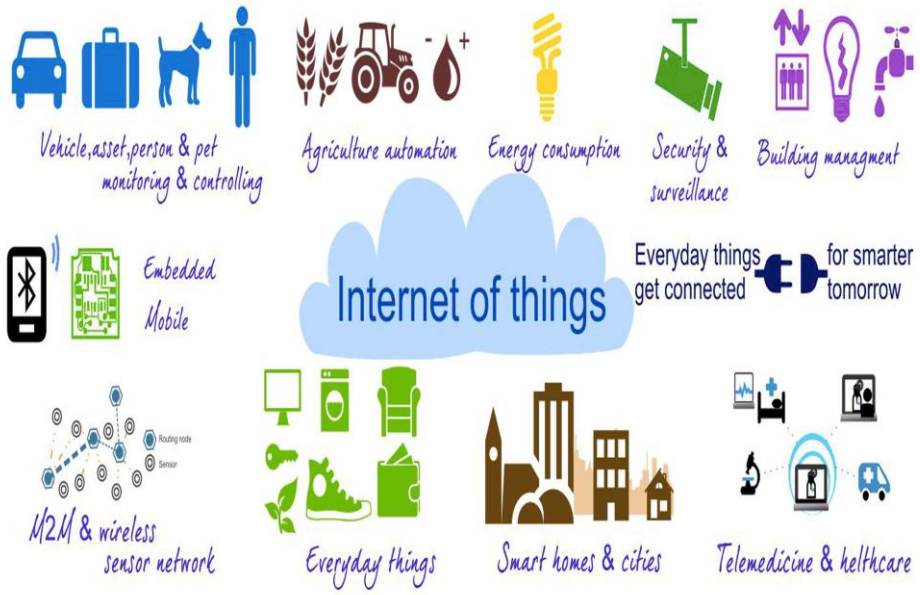
- **Artificial Intelligence (AI) –** AI is the part of computer science which make intelligent of any machines like human, obviously without AI IoT devices are not intelligent its algorithms, its techniques like learning , classifications, associations are make smarter to IoT devices. Suppose in our house a webcam has placed in front of your gate and this webcam has captured faces to all visitors but if you want to "No Entry" of any particular persons then this can be done by AI.

➢ **Network Connectivity –** Next component of IoT is networking, which is connected through internet. All sensors and electronics devises are connected to each other, through this connection all these instruments are communicate to each other in other words network connection is mouth of devices from which they are talking in simple word. Networks can exist on a smaller and cheaper scale. IoT creates these small networks between its devices.

1.2 IoT's Applica1ons

There are many applications of IoT devices for making smarter and safety. Some of them are given below.

a. Smart environment (home, office, etc)
b. Health care
c. Transportation & logistics.
d. Personal & Social domain (Physical handicap, security)
e. Agriculture.



1.3 IoT fill-up the disability gaps.

We know that a billion people currently have a disability in our society. According to World Health Organization approximately one in ten people has disable in India and one in five people in the UK [7]. IoT fill-up the disability gaps between human and their disable organs, it helping them through provides a service by IoT's devices. It make a bridge between disable human and their weakness for examples Vodafone recently lunching on smart homes project to enhance the quality of learning for those persons who are not able to learn. The IoT devices have collected data from neighbor home via sensor, connected speakers, fridges, mobile, webcam and other devices and provide useful information for resident's care. Similarly lot of cares have found in our society that has need to used IoT devices for betterment of life[11]. All these will discuss in review section.

II. Review:

There are various models have been developed for home automation, Monitoring system [10], security system, health caring, smart class for education, voice and face recognition systems and smart wheel-chair, smart stick for blind human and many more for disable human. In the world, there are ten billion people around are either blind, deaf or dumb for which it is a challenging task for Engineers [11] to develop a device which establish a communication between a disable person and a normal person. Following are discussed of literature reviews for the same.

a. A recent literature review by B. Shubankar et al.[1] proposed a IoT device for disabled people. These devices basically focused on sign language which is used for communicating feeling and emotions with normal people through facial expression and body representation. Authors have tried to remove the communication gap between the disable and normal people. The proposed design makes use of hand gloves mounted with flex sensors which recognize the characters and command.

b. Toyata has developed a wearable device called band which enhance the mobility of blind people for indoor places [2] like house, malls and stations. Basically this band has smart camera which sense distance from the body it identify to the objects with proper distance and alert to blind people. It works on "It this condition is hold then that action will perform".

c. "Homey" IoT device provides a basic control of home like lights, security systems, room temperature, TV, SMS/ alert to servant automatically through voice control device [3]. Actually these device is more beneficial for those people who are not able to movement inside the home due to paralysis or other medical issues and his life is depend on some other person. He has suffering from frustrations or depression but if he has "Homey" IoT device then he has control everything through voice of mouth and it is not depend on touch of physical devices.

d. A review by Arathi Boyanapalli [7] focus on assistive technology which are available and helping disabled people. In this technology a dynamic system having sensors, relay, GSM, ARM7 processor, Bluetooth and speaker has been developed which can help in improving communication between disabled people and their caregiver[6].

e. Authors proposed a home automation system [4] for disabled people which are unable to move in their house. This stem helps by controlling every things from a single place just one click away from human or one speak on voice recognition systems.

f. The problems for Smart security of women has been proposed by Sunil kumar Thakur and others authors [5] using IoT. In this proposed model they focused on a security system that is designed for providing security to women so that they never feel helpless while facing such social challenges.

III. Propose Work.

We know that day by day technology is growing in every field and it reduce the human effort. IoT concept came to practice in 20th century[16] and it support to every field especially for security, health care and society of human. Propose work will make smart wheel chair better than existing chair for any disable person especially for senior citizen either he/she is blind or suffering from paralysis.

Currently lots of smart wearable devices [9] are available in market like:

- **Head** – Helmets, glasses
- **Neck** – Jewelry, collars
- **Arm** – Watches, wristbands, rings
- **Torso** – Clothing, backpacks
- **Feet** – Socks, shoes

Apart of this we will develop a model with the help of available sensors, devices, Machine learning and programming language for wheel-chair such that any handicap human, even blind person, will used by paying very less amount and easily assemble in existing wheel-chair. There are mainly the following technologies will use in propose model.

- GSM, Bluetooth, Wi-Fi as per requirement.
- ZigBee for using voice command.
- Xbee, ARM9, ARM7 for controlling electric appliances.
- Motion sensor which detect suspicious movement by any persons.
- Android accessing development kit.
- Webcam for capturing objects.

Figure3: Wheel-chair [17]

IV. Conclusion

In the world, Mathematical analysis shows that there are ten billion people are disabling around us by various modes like blind, deaf or dumb. All these people are unable to communicate with a normal human they want but not able so in this situation IoT applications are work as a bridge between disable and normal human because IoT will soon be a major part of our work on every places. Suppose these people want to go city or market or any public places but unable to go without any support, in this situation IoT devices have support and guide them only they will be used smart watch, bracelets, glasses, shoes or some other devices which are integrated with regular clothing as per their requirement. Smart shoes are available in the market which helps us as Google maps by sensing vibrations in shoe, as disable person walks it vibrates on that side which you want to turn. Finally we will develop a smart wheel-chair for disable human especially senior citizen of India.

References

[1]. B.Shubankar, Mallika, Chowdhary, Priyaadharshini M, "IoT Device for Disable People" International Conference of Recent Trends in advanced computing, 2019.
[2]. Arathi Boyanapalli, Rohini Patil, "Assistive Technology using IoT for Physically disabled people", International Journal of Technology and Exploring Engineering, vol-8, issue-7, 2019.
[3]. Vamil B. Sangoi, "Smart security solutions," International Journal of Current Engineering and Technology, Vol.4, No.5, Oct-2014.
[4]. Gagan,"IoT based system for person with physical disability", International Journal of Innovative research in electrical, electronics, instrumentation and control engineering, vol-4, Issue-2 , 2016
[5]. Darwin Britto R, Sunil kumar Thakur, " Smart security solutions for women using IoT", International Journal of pure and applied mathematics, vol-18, no-19, 2018.
[6]. Simon L. Cotton and William G. Scanlon, "Millimeter – wave Soldier-to-soldier communications for covert battlefield operation," IEEE communication Magazine, October 2009.
[7]. Alexandrous Plantelopoulous and Nikolaos.G.Bourbakis, "A Survey on Wearable sensor based system for health monitoring and prognosis," IEEE Transaction on system, Man and Cybernetics, Vol.40, No.1, January 2010.
[8]. B.Chougula, "Smart girls security system," International Journal of Application or Innovation in Engineering & Management, Volume 3, Issue 4,April 2014.
[9]. Palve Pramod, "GPS Based Advanced Soldier Tracking With Emergency Messages & Communication System," International Journal of Advance Research in Computer Science and Management Studies Research Article, Volume 2, Issue 6, June 2014.
[10]. K. V. Fale, Akshay Phalke, Pratik Chaudhari, Pradeep Jadhav. "Smart Glove: Gesture Vocalizer for Deaf and Dumb People". International Journal of Innovative Research in Computer and Communication Engineering, Vol. 4, Issue 4, April 2016.
[11]. Ms. Athira Panicker Smart Shopping assistant label reading system with voice output for blind using raspberry pi, Ms. Anupama Pandey, Ms. Vrunal Patil YTIET, University of Mumbai ISSN: 2278 – 1323 International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Vol. 5, Issue 10, Oct 2016 PP-2553.
[12]. Priya Matnani, "Glove Based And Accelerometer Based Gesture Control: A Literature Review", International Journal of Technical Research and Applications e-ISSN: 2320-8163, www.ijtra.com Volume 3, Issue 6 (November-December, 2015), PP. 216-221.
[13]. GOOGLE HOME, https://store.google.com/au/product/google_home (last visited Jan. 14, 2019.
[14]. www.stoodnt.com/blog/Iot-statistics-for-2020
[15]. News Release, Wearable Mobility Device for the Blind and Visually Impaired Being Developed by Toyota, Toyota,
[16]. https://pressroom.toyota.com/releases/wearable+mobility+visually+impaired+toyota.htm.
[17]. https://en.wikipedia.org/wiki/IOT
[18]. https://www.arm.com/glossary/iot-devices

Purtee jethi kohli. "Using IoT devices to enhance the working life of Physical handicap senior citizen women in our society." *IOSR Journal of Computer Engineering (IOSR-JCE),* 24(3), 2022, pp. 44-48.