Progression & Incorporation in usage of Adaptive Devices through IoT intended for Differently-abled People

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Abstract—
Adaptive devices are required to be used in effective manner for assistance of differently- abled people. There is requirement of various intelligent tools which are governed by IoT (Internet of Things). An efficient contribution of Sensors, activators, data communication networks, information processing devices, and power supply units is needed to understand the mental behavior of people and these devices are integrated in order to get attached to various objects hence providing assistance to differently-abled people.

Keywords*— Adaptive Devices*, IoT,* Information Processing Devices*.
DOINumber: 10.48047/nq.2022.20.2.NQ22382 **NeuroQuantology2022;20(2):833-836**

I. INTRODUCTION

There is a need to get information in a more secure way through the internet; hence many objects are connected to internet which in turn forms Internet of Things (IoT). There is an essential role of the objects which have to detect and respond physical, biological and chemical changes as events and have to report accordingly.

Different sensors can enhance the quality of information. IoT has shown progression in making changes in various fields.

Applications of IoT which are developed for differently abled do not necessarily be designed in a special way. Such as people with cognitive impairments may be helped through smart lights which may assist them in reminding about piece of work to be done; noise responding lights may be used by people with hearing impairment; with visual impairments may use touch screens which have appropriate applications to guide those.

II. RELATEDWORK

The exponential growth of connected devices, the heterogeneity of IoT use cases, and the diversity of the network technologies yield a concern regarding IoT sustainability. With this work, we aim to contribute to this concern. In doing so, we introduce an ovel representation model that is destined for (i) monitoring the IoT environment at runtime, (ii) expressing the overall quality of the system, and (iii) helping to utilize the available resources efficiently. Such solutions are necessary to improve and maintain IoT of the future and all its application domains, including the Industrial Internet of Things (IIoT). With the presented research, we aim to encourage the efficient utilization of resources and simplify the production of next-generation IoT solutions. With the advancement in IoT people are depending too much on technology to accomplish everyday tasks such as turning the lights off or even driving the car. D.C., Robert Riener from ETH Zurich, The Swiss Federal Institute of Technology in Zurich, Switzerland, Ronald Triolo, Case Western Reserve University in Cleveland, Ohio, U.S.A., and KyuJinCho, Seoul National University in Seoul, Republic of Korea reveal the latest developments in limb prosthetics, assistive robotics, and brain computer interfaces that tackle form as well as function. In the future, artificial electrical stimulation signals will stimulate nerves and glove-

like soft devices will restore hand functions offering a better quality of life for people who need assistive devices[12]. According to the World Health Organization (WHO), around 15% of the world's population is physically impaired to some degree. KyuJinCho, Director of the Biorobotics Laboratory at Seoul National University in South Korea introduces the Exo-glove that addresses paralysis of the hand that inhibits patients from even the most simple of activities in daily life [12] [fig1 &2].

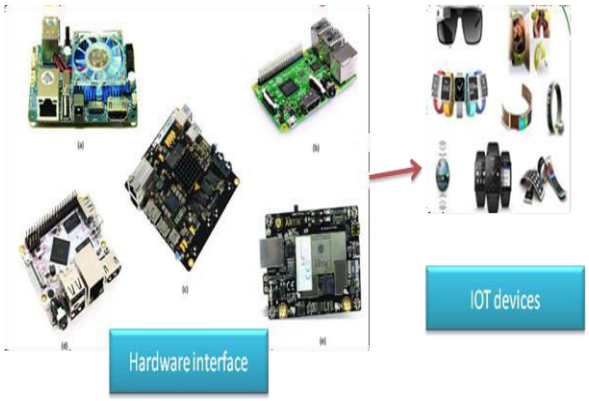

Fig.1. IOT based application specific selected hardware or embedded Devices

Fig. 2.Exo-glove helps to improve the hand paralysis in nayage–group[12]

III. TECHNOLOGY ADVANCEMENT

With the advancement in IoT people are depending too much on technology to accomplish everyday tasks such as turning the lights off or even driving the car. Few researchers claim IoT advancement will finally make a man unwilling to work or use any energy. Devices will dictate our daily lifestyle and will control almost everything

including food and liquid intake by regular alerts on our phone. Kumar Mandalu et.al [1] proposed a mobile based home automation system using IoT with two prototypes as Bluetooth and Ethernet with a microcontroller based Arduino board and Android mobileapp. Relays are used to show switch on and switch off of the appliances.

M.Tharaniyasoundhariet.al.[2] proposed a Home Automation System through Speech Recognition using Super Vector Machine and General Packet Radio Service which can control appliances within a home. The electrical appliances can be switched on or switched off using voice commands. The disadvantage is there may be loss of packets if there is a fluctuation in the signal. Gagan[3], proposed Automation System for electrical appliances and monitored gas, smoke thresholds to provide safety for Specially Challenged People using Intel Galileo board. The sensors used in the system provide safety features as added advantage to the smart appliances.

The cost of the system increases with the increase of the sensors. Maradugu AnilKumar, Y.RaviSekar[4] proposed a Health Care System using a mobile application that constantly monitors heart rate, oxygen level and temperature of the patient using Zigbee, ATMEGA8L processor and sensor technology. The patient can be monitored continuously but in a limited area because zigbee uses personal area network. B.Sneha, et.al[5]proposed a System using ATMEGA328 processor and Bluetooth technology. The health of patient is monitored continuously but Bluetooth range is limited. D. Gulbakshee et.al.[6] proposed Speech based SMS system on Android which uses Hidden Markov Model Method to send SMS. HMM algorithm is used. Mc.Ianet.al.[7] proposed mobile based personalized Speech Recognition using dictionary search. P.Sanjaet.al. [8] proposed speech based SMS system on Android which uses HMM Method to send SMS. More and more devices interconnected amongst them and to the internet will lead to a lower need for manpower and eventually loss of jobs but industry 5.0 is reliable [Fig. 3]. IoT and AI will promote automation of every work that requires manpower and Automation will have a devastating impact on low

and medium-skilled workers.

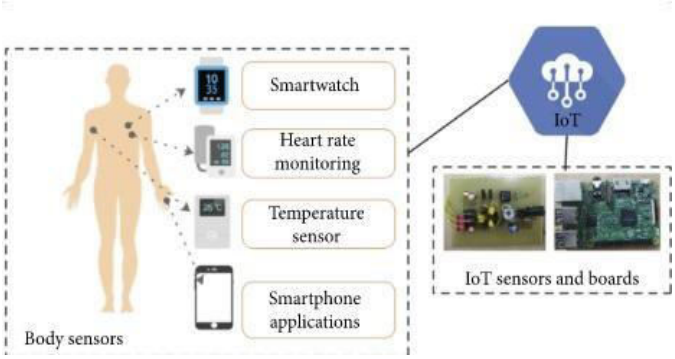

Fig3.Impact of sensor in body area

IV. CONCLUSION

Today internet of Things (IoT) techniques uses for improving the life style of disabled peoples. Various intelligent services can be realized based on the Internet of things and that can used Sensor, information processing device, and power supply unit are integrated in to it so that they can be attached to various objects. We have analyzed the Assistive technology devices that integrated with IoT so the deaf and hearing impaired person which can easily communicate and be coupled with a complete array of connected devices and it provides unique benefit for physically challenged person.

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