

# Wearable Device in Medical IoT

**Sagar Gupta**

Student, Department of MCA

Late Bhausaheb Hiray S S Trust's Hiray Institute of Computer Application, Mumbai, India

**Abstract:** *Health is one of the most important aspects of life. Still, people still could not get proper health services. It's caused by limitation to the used technology in hospitals and limitations to get to the hospital. Internet-of-Things (IoT) as one of the utmost trending motifs presently, formerly giving so many results in many ways, for example, in healthcare. Wearable devices are currently at the heart of just about every discussion related to the Internet of Things. The requirement for self-health monitoring and preventive medicine is increasing due to the projected dramatic increase in the number of elderly people until 2020. Developed technologies are truly able to reduce the overall costs for prevention and monitoring. This is possible by constantly monitoring health indicators in various areas and in particular, wearable devices are considered to carry this task out. These wearable devices and mobile apps now have been integrated with telemedicine and telehealth efficiently, to structure the medical Internet of Things. This paper reviews wearable health care devices both in scientific papers and commercial efforts.*

**Keywords:** Delivering of health care, Information Storage and Retrieval, Internet, Mobile Application, Smartphones, Telemedicine

## REFERENCES

- [1]. Sood SK, Mahajan I. Wearable IoT sensor based healthcare system for identifying and controlling chikungunya virus. *Comput Ind.* 2017; 91:33–44.
- [2]. Lazizzera R, Belhaj Y, Carrault G. A new wearable device for blood pressure estimation using photoplethysmogram. *Sensors.* 2019; 19(11):2557.
- [3]. Fierro G, Silveira F, Armentano R. Low group delay signal conditioning for wearable central blood pressure monitoring device. In: 2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). 2017. p. 3285–8.
- [4]. Holz C, Wang EJ. Glabella: Continuously sensing blood pressure behaviour using an unobtrusive wearable device. *Proc ACM Interactive, Mobile, Wearable Ubiquitous Technol.* 2017; 1(3):1–23.
- [5]. Narasimhan R, Parlikar T, Verghese G, McConnell M V. Finger-Wearable Blood Pressure Monitor. In: 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). 2018. p. 3792–5.
- [6]. Zhang G, Cottrell AC, Henry IC, McCombie DB. Assessment of pre-ejection period in ambulatory subjects using seism cardiogram in a wearable blood pressure monitor. In: 2016 38th annual international conference of the IEEE Engineering in Medicine and Biology Society (EMBC). 2016. p. 3386–9.
- [7]. Dai M, Xiao X, Chen X, Lin H, Wu W, Chen S. A low-power and miniaturized electrocardiograph data collection system with smart textile electrodes for monitoring of cardiac function. *Australas Phys Eng Sci Med.* 2016; 39(4):1029–40.
- [8]. Nakajo K, Takahashi S, Shiraishi Y, Komori Y, Motegi K, Miyashita H. Pressure transfer function for aorta model in cardiovascular simulator: Feasibility study of wearable central blood-pressure gauge. In: 2016 International Conference on Medical Engineering, Health Informatics and Technology (MediTec). 2016. p. 1–4.
- [9]. Sasidharan P, Rajalakshmi T, Snehalatha U. Wearable cardiorespiratory monitoring device for heart attack prediction. In: 2019 International Conference on Communication and Signal Processing (ICCSPP). 2019. p. 54–7.
- [10]. Arif NH, Surantha N. IoT Cloud Platform Based on Asynchronous Processing for Reliable Multi-user Health Monitoring. In: *Advances in Intelligent Systems and Computing.* Springer Verlag; 2020. p. 317–30.

- [11]. Prawiro EAPJ, Yeh C-I, Chou N-K, Lee M-W, Lin Y-H. Integrated wearable system for monitoring heart rate and step during physical activity. *Mob Inf Syst.* 2016; 2016.
- [12]. Huen D, Liu J, Lo B. An integrated wearable robot for tremor suppression with context aware sensing. In: 2016 IEEE 13th International conference on wearable and implantable body sensor networks (BSN). 2016. p. 312–7.
- [13]. Zhou Y, Jenkins ME, Naish MD, Trejos AL. Development of a wearable tremor suppression glove. In: 2018 7th IEEE International Conference on Biomedical Robotics and Biomechatronics (Biorob). 2018. p. 640–5.
- [14]. Tzallas AT, Tsipouras MG, Rigas G, Tsalikakis DG, Karvounis EC, Chondrogiorgi M, et al. PERFORM: a system for monitoring, assessment and management of patients with Parkinson’s disease. *Sensors.* 2014; 14(11):21329–57.
- [15]. Hssayeni MD, Jimenez-Shahed J, Burack MA, Ghoraani B. Wearable sensors for estimation of parkinsonian tremor severity during free body movements. *Sensors.* 2019; 19(19):4215.
- [16]. Bachlin M, Plotnik M, Roggen D, Maidan I, Hausdorff JM, Giladi N, et al. Wearable assistant for Parkinson’s disease patients with the freezing of gait symptom. *IEEE Trans Inf Technol Biomed.* 2009; 14(2):436–46.
- [17]. Abbas H, Zahed K, Alic L, Zhu Y, Sasangohar F, Mehta R, et al. A wearable, low-cost hand tremor sensor for detecting hypoglycemic events in diabetic patients. In: 2018 IEEE International RF and Microwave Conference (RFM). 2018. p. 182–4.
- [18]. Uswatte G, Miltner WH, Foo B, Varma M, Moran S, Taub E. Objective measurement of functional upper extremity movement using accelerometer recordings transformed with a threshold filter. *Stroke* 2000; 31(3):662-7.
- [19]. Miyazaki S. Long-term unrestrained measurement of stride length and walking velocity utilizing a piezoelectric gyroscope. *IEEE Trans Biomed Eng* 1997; 44(8):753-9
- [20]. Mayagoitia RE, Nene AV, Veltink PH. Accelerometer and rate gyroscope measurement of kinematics: an inexpensive alternative to optical motion analysis systems. *J Biomech* 2002; 35(4):537-42...
- [21]. Takeda R, Tadano S, Todoh M, Morikawa M, Nakayasu M, Yoshinari S. Gait analysis using gravitational acceleration measured by wearable sensors. *J Biomech* 2009; 42(3):223-33.
- [22]. <https://www.ncbi.nlm.nih.gov>
- [23]. Stables J. Best fitness trackers 2015: Jawbone, Misfit, Fitbit, Germin and more [Internet] place unknown: publisher unknown; 2015. [Cited at 2017 Jan 25]. Available from: <https://www.iworldonline.com.au/index.php/blog/best-fitness-trackers-201...>
- [24]. Misfit Shine Fitness + Sleep Monitor [Internet] Burlingame (CA): Misfit; 2015. [cited at 2017 Jan]
- [25]. Available from: <http://misfit.com/products/shine?locale=en>.