

Review Paper on the Behavioral Study of Patients Suffered from COVID-19 & its Impact with Parametric Analysis

Payal Bansal¹, Manish Sharma²

¹Associate Professor, Poornima College of Engineering, Jaipur Rajasthan India

²Assistant Professor, Poornima College of Engineering, Jaipur Rajasthan India

Abstract - Now a days, its chance to taken alerts from Coronavirus to the extent concern the remote advances are a lot of helpful. On account of COVID, diabetic patients were more affected because of less insusceptibility and powerless digestion. In this paper, we survey the on some information, that is experienced COVID because of previously confronting some medical problems and we likewise locate that the respiratory framework and lungs contamination is most contacted region in these cases. On account of diabetic fingertip prinking for a blood test is awkward for glucose estimation. Intrusive methodologies like research facility test and one touch gluco meter improve the danger of blood related contaminations. As we as a whole now the Bluetooth & Wi-Fi innovation is a sort of little measured, short separated and ease remote imparting innovation. Other than the further blend of correspondence and PC, Bluetooth innovation can likewise make advanced hardware which are made by various companies have the properties of interoperability and interoperation.

Index Terms - COVID-19, Prediabetic, Smart Health Care, Dibieties Wi-Fi, Wireless Network, Communication.

I. INTRODUCTION

As we know that when the population is increase of senior citizen in the human society, continuous health monitoring becomes progressively more important in the health care facilities. The medical personnel need to monitor the patient's status in case of an emergency but would not desire to increase the number of room visits. As a result, there is a requirement of a physiological monitoring system which enables the medical personnel to monitor the patient's status remotely and accurately.[3]

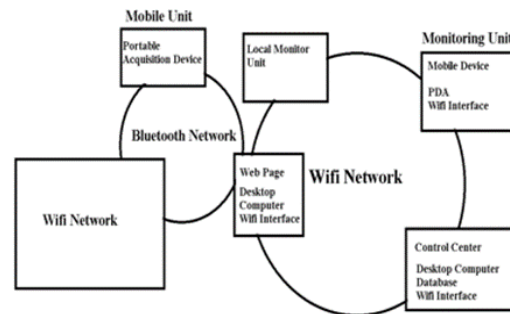


Fig.1. Architecture of Monitoring System

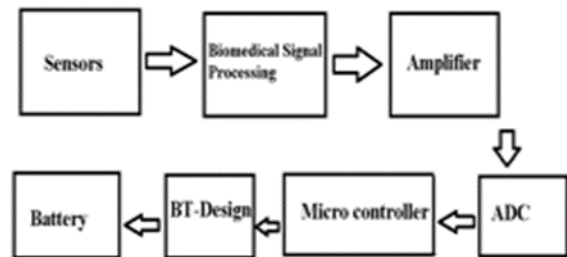


Fig. 2. Working of Wireless System in Medical field

II. OVERALL STRUCTURE OF DESIGN

The portable device for the evaluation of myodynamia based on wireless technique is developed in this study. The device is mainly consisted by the muscle strength sensor, MSP430F149 microcontroller system [7,8], Bluetooth communication module and PC, which can achieve testing and evaluating of different parts of the limbs and trunk in human body's strength in the range of 0 ~ 500N [9]. And, the Bluetooth communication module can achieve data transmission between dynamometer and PC in the range of 10 m. The device is characterized with low power consumption, simple structure, easy to operate, powerful functions, etc.,

which can make quantitative analysis for muscle rehabilitating function of the clinical assessment.[6] The device for the evaluation of myodynamia is designed to reach the requirements of high accuracy, low cost, low power, small size and easy operation. For the above requirements, the device mainly consists of muscle strength sensors, MSP430F149 microcontroller systems [10].

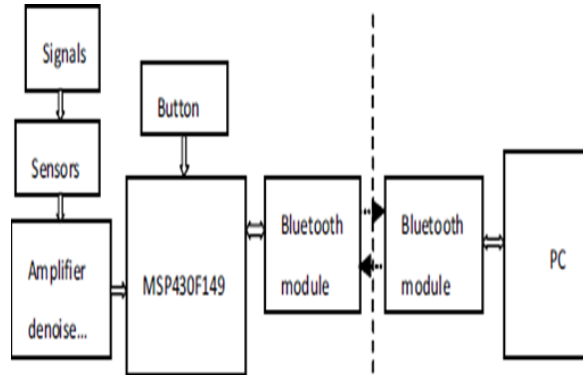


Fig. 3. Working of Bluetooth in Medical field

III.PARAMETRIC ANALYSIS IN TABULAR FORM-I FOR MALE PATIENT

Here we analysis the Male Patient samples for differ Diabetic levels. We have considered parameters e.g. Samples basic characteristics, Brief Explanation of samples for Validation & Suffered from COVID-19.[7]

Table 1: Baseline characteristics of collected samples for calibration.

Samples Basic Characteristics	Brief Explanation of Samples for Validation	Suffered From Covid-19
Age (Years)	Prediabetic	
Male:- 22-65	Male:- 11	2
Age (Years)	Diabetic	
Male:- 30-68	Male:- 17	8
Age (Years)	Healthy	
Male:- 22-65	Male:- 36	0
Age (Years)	Total Samples	
Male:- 22-77	Male:- 64	10

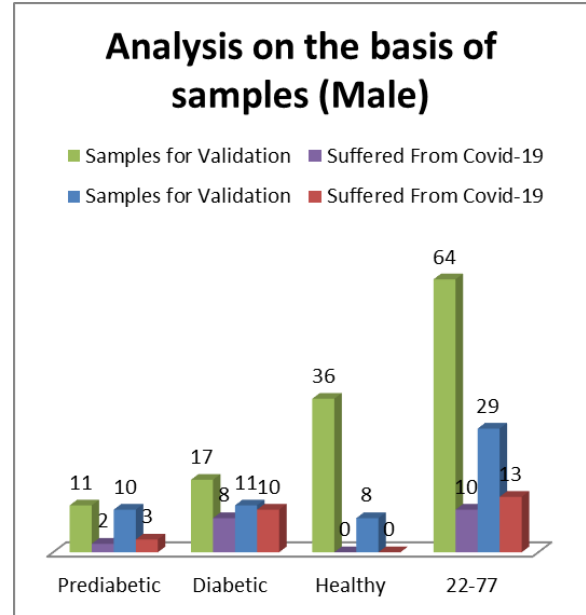


Fig.4: Analysis data on the basis of samples (Male)

Parametric Analysis in Tabular Form-II for Female Patient:-

Here we analysis the Male Patient samples for differ Diabetic levels. We have considered parameters e.g. Samples basic characteristics, Brief Explanation of samples for Validation & Suffered from COVID-19.[7]

Table 2: Baseline characteristics of collected samples for calibration.

Samples Basic Characteristics	Brief Explanation of Samples for Validation	Suffered From Covid-19
Age (Years)	Prediabetic	
Female:- 26-75	Female:- 10	3
Age (Years)	Diabetic	
Female:- 30-73	Female:- 11	10
Age (Years)	Healthy	
Female:- 17-70	Female:- 08	0
Age (Years)	Total Samples	
Female:- 17-75	Female:- 29	13

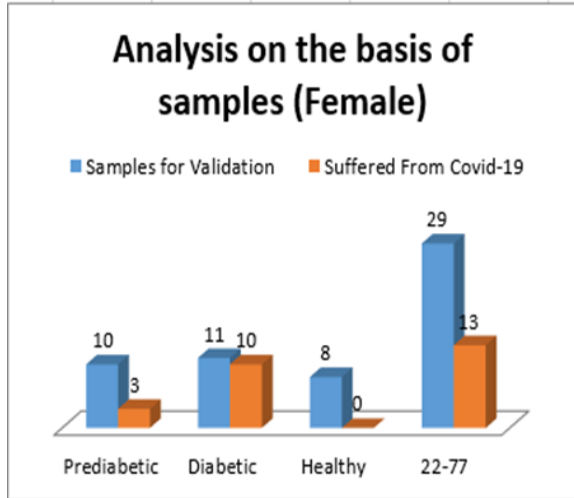
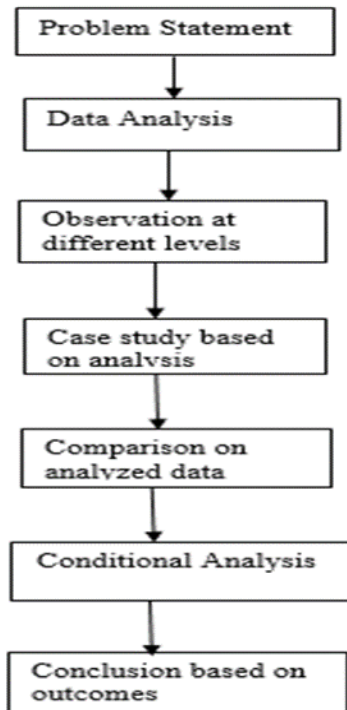


Fig.5: Analysis data on the basis of samples (Female) We have found some results on the basis of human behavior & their parametric concern focused on health issues. We have survey 64 patients according to their fitness & suffered disease. On the basis of study, we conclude that females are more sensitive in term of immunity & metabolism due to lack of calcium, iron & deficiency of many more. [10]

IV. PROCESS FLOW DATA ACQUISITION FOR PROPOSED ANALYSIS



V. CONCLUSION

In this paper, we have studied on the data, in which we have found some results on the basis of human behavior & their parametric concern focused on health issues. We have survey 64 patients according to their fitness & suffered disease. On the basis of study, we conclude that females are more sensitive in term of immunity & metabolism due to lack of calcium, iron & deficiency of many more. A wireless physiological monitoring system was proposed and implemented. This system integrates the Wi-Fi wireless technology and the Bluetooth wireless technology to effectively monitor the patient’s statuses remotely. A portable physiological signal acquisition device was developed which acquires vital-signals from the patient and transmit the data through Bluetooth wireless technology. Several monitor units were designated on different platforms to meet different clinical needs in monitoring and archiving patients’ records. With the combination of Wi-Fi and Bluetooth wireless technologies and the development of different monitor units, this system highly.[5]

REFERENCES

- [1] H. Zhu, C. K. Wu, C. H. Koo, Y. T. Tsang, Y. Liu, H. R. Chi, and K. Tsang, “Smart healthcare in the era of Internet-of-Things,” *IEEE Consum. Electron. Mag.*, vol. 8, no. 5, pp. 26–30, Sep 2019.
- [2] M. Ghamari, B. Janko, R. Sherratt, W. Harwin, R. Piechockic, and C. Soltanpur, “A survey on wireless body area networks for eHealthcare systems in residential environments,” *MDPI Sensors*, vol. 16, no. 6, p. 831, Jun 2016.
- [3] C. Solis-Herrera, C. Triplitt, C. Reasner, R. A. DeFronzo, & E. Cersosimo, “Classification of diabetes mellitus,” 2019, Last Accessed on 02 Apr 2020. [Online]. Available: <https://www.ncbi.nlm.nih.gov/books/NBK279119/>
- [4] I. D. Federation, “IDF diabetes atlas - diabetes is rising worldwide...and is set to rise even further,” 2019, last Accessed on 21 March 2020. [Online]. Available: <https://diabetesatlas.org/en/sections/worldwide-toll-of-diabetes.html>
- [5] S. Lee, P. Huang, M. Liang, J. Hong, and J. Chen, “Development of an arrhythmia monitoring system and human study,” *IEEE Trans.*

- Consum.Electron., vol. 64, no. 4, pp. 442–451, Nov 2018.
- [6] N. Dey and A. S. Ashour and F. Shi and S. J. Fong and R. S. Sherratt, “Developing residential wireless sensor networks for ECG healthcare monitoring,” *IEEE Trans. Consum. Electron.*, vol. 63, no. 4, pp. 442–449, Nov 2017.
- [7] P. Jain, A. M. Joshi, and S. P. Mohanty, “iGLU: an intelligent device for accurate non-invasive blood glucose-level monitoring in smart healthcare,” *IEEE Consum. Electron. Mag.*, vol. 9, no. 1, Jan 2020, pp. 35-42.
- [8] P. Sundaravadivel, K. Kesavan, L. Kesavan, S. P. Mohanty, & E. Kougiannos, “Smart-Log: a deep-learning based automated nutrition monitoring system in the IoT,” *IEEE Trans. Consum. Electron.*, vol. 64, no. 3, pp. 390–398, Aug 2018.
- [9] P. P. Pai, A. De, and S. Banerjee, “Accuracy enhancement for noninvasive glucose estimation using dual-wavelength photoacoustic measurements and kernel-based calibration,” *IEEE Trans. Instrum. Meas.*, vol. 67, no. 1, pp. 126–136, 2018.
- [10] P. Jain, A. M. Joshi, N. Agrawal, and S. P. Mohanty, “iGLU 2.0: a new non-invasive, accurate serum glucometer for smart healthcare,” *arXiv Electrical Engineering and Systems Science*, vol. abs/2001.09182, 2020. [Online]. Available: <http://arxiv.org/abs/2001.09182>
- [11] R. D. Beach, R. W. Conlan, M. C. Godwin, and F. Moussy, “Towards a miniature implantable in vivo telemetry monitoring system dynamically configurable as a potentiostat or galvanostat for two- and three-electrode biosensors,” *IEEE Trans. Instrum. Meas.*, vol. 54, no. 1, pp. 61–72, Feb 2005.
- [12] M. S. Prasad, R. Chen, Y. Li, D. Rekha, D. Li, H. Ni, and N. Y. Sreedhar, “Polypyrrole supported with copper nanoparticles modified alkali anodized steel electrode for probing of glucose in real samples,” *IEEE Sensors J.*, vol. 18, no. 13, pp. 5203–5212, July 2018.
- [13] A. K. Singh and S. K. Jha, “Non-invasive, optical biosensor for selfmonitoring of glucose using saliva,” *IEEE Sensors J.*, vol. 19, no. 18, pp. 8332–8339, Sep. 2019.
- [14] T. Dai and A. Adler, “In vivo blood characterization from bioimpedance spectroscopy of blood pooling,” *IEEE Trans. Instrum. Meas.*, vol. 58, no. 11, p. 3831, 2009.