IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 9, Issue 6, June 2021

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.542

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906192 |

The Heart Disease and COVID Disease Prediction using Supervised Classification Techniques

Komal Waikar, Mansee Bhandari, Nikita Neharkar, Manoj Divekar, Mohtashim Nayyar, Prof.Pallavi Shejwal

Students, Department of Information Technology, JSPM Bhivrabai Sawant Institute of Technology And Research, Pune, India

Professor, Department of Information Technology, JSPM Bhivrabai Sawant Institute of Technology And Research, Pune, India

ABSTRACT: Heart disease is a common problem that can be very serious in the elderly and also in individuals who do not have a healthy lifestyle. With regular check-up and diagnosis in addition to maintaining a decent eating habit can prevent it to some extent. The huge amount of the data regarding the patients is generated by the hospitals such as x-ray results, lungs results, heart paining results, chest pain results, personal health records etc. The decision tree class identify is implemented based on the symptoms which are specifically the attributes required for the purpose of prediction. Using the decision tree algorithm, we will be able to identify those attributes which are the best one that will lead us to a better prediction of the datasets. There is no effective use of the data which is generated from the hospitals. Some certain tools are used to extract the information from the database for the detection of heart diseases and other function is not accepted. The main theme of this research is the prediction of heart diseases using machine learning techniques by summarizing the few current research.

KEYWORDS:Heart disease prediction, machine learning, supervises learning, classification

I. INTRODUCTION

The recent studies show that mortality rate increasing in vast amounts because of heart disease. So to minimize the mortality rate intelligent heart disease prediction system is required. There are various reasons for heart disease like changing lifestyle, more stress and so on. So heart disease prediction very important needs of life. As we have studied in literature various data mining techniques have been used for the prediction of heart disease. Parameters considered for experiment are blood pressure, heart rate, cholesterol, pulse rate, and so on. Each day in large quantity medical data is generated so important knowledge extraction from this big data is challenging task. Heart is the main part of human life, if heart is working properly then human health is good. The input to the system contains 7 parameters. The output generated by system will be one of the two classes as Normal and Critical. It is limited to only heart disease prediction. Due to the depth and breadth of research, BSN technology is slowly maturing and is being widely used in many fields including medicine, social welfare, sports, etc. To proposed work is to develop and introduce a framework that provides the patient with health by analysing any disease's recommendations using the classification method of machine learning.

II. RELATED WORK

[1]MOSENIA A, SUR-KOLAY S, RAGHUNATHAN A, JHA N.[1] WEARABLE MEDICAL SENSOR BASED SYSTEM DESIGN IEEE TRANSACTIONS ON MULTI-SCALE COMPUTING SYSTEMS.THIS PROPOSED WEARABLE MEDICAL SENSOR-BASED SYSTEM DESIGN. THIS SYSTEM DISCUSSES VARIOUS SERVICES, APPLICATIONS, AND SYSTEMS THAT HAVE BEEN DEVELOPED BASED ON WMSS AND SHEDS LIGHT ON THEIR DESIGN GOALS AND CHALLENGES

[2] Patil, Prakashgoud, and SaminaMohsin.[2] "Fuzzy logic based health care system using wireless body area network." International Journal of Computer Applications 80.12 (2013).This proposed system designed for measuring

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906192 |

health parameters of patient body in which it consists oftemperature and pulse sensor, this sensor is connected to Base Station through a microcontroller and that device have the ability to be control and monitored by remote computer.

[3] Madhyan, Ekta, and Mahesh Kadam2014.[3] "A unique health care monitoring system using sensors and zigbee technology." International Journal of Advanced Research in Computer Science and Software Engineering 4.6 (2014): 183- 189 .This proposed A Unique Health Care Monitoring System Using Sensors and Zig Bee Technology. The proposed system can monitor the different aspect of the human body such as Blood Pressure, Electrocardiogram (ECG), Electroenchaplogram (EEG), Temperature, glucose, respiratory (spirometer). The proposed system in which it gathered the information from patient through different aspect of body function and these information is transmitted to zigbee and from that zigbee it sends data from one zigbee to another zigbee, after receiving the information it display on the display module such as mobile of doctor or family or emergence unit. According to the real measurement results, health care can be acquired by the proposed WBSA-soc[3]

III. PROPOSED ALGORITHM

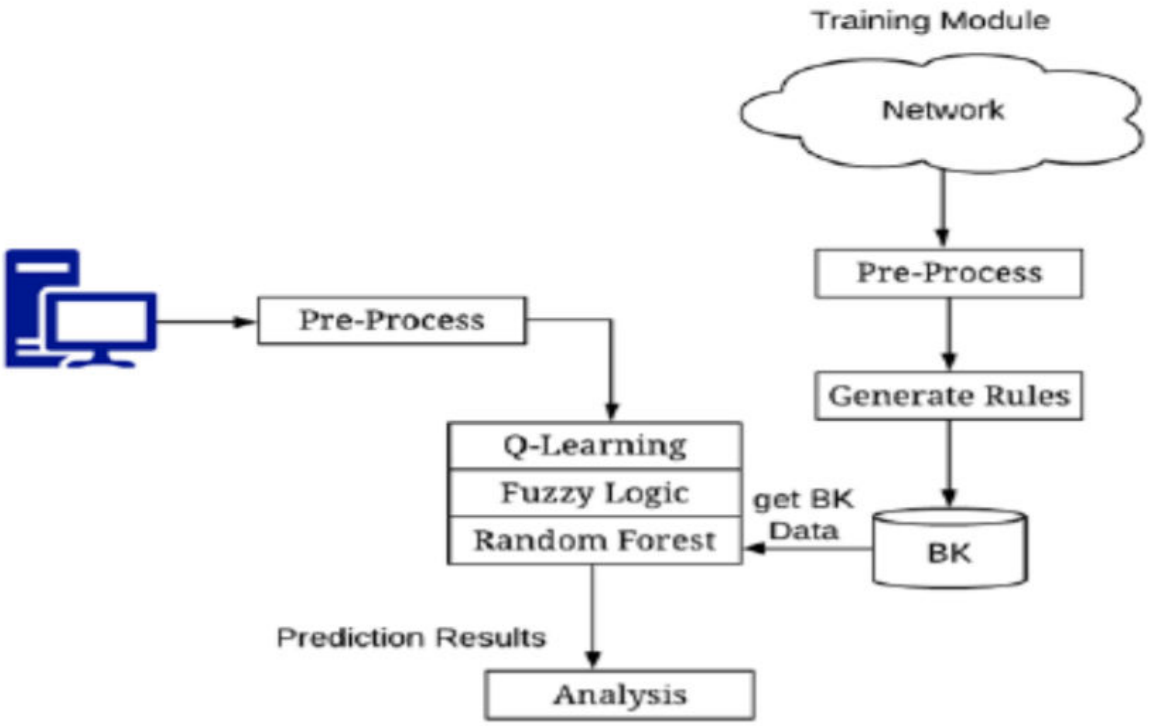


Figure 1 : Proposed system architecture

1) Training:

- Collect data from various online as well as offline sources
- Apply data mining approaches.
- Data is been saved into the database called as background knowledge, which is used at the time of testing.

2) Testing:

- System work with synthetic as well as real time input patient's data over the internet and predict the disease possibility based on trained module.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906192 |

- Using a link-oriented architecture, all collected data is stored in a global database.
- In testing, all testing and training data are read simultaneously.
- Apply the classification of the machine and foresee the future application of the decision-making method.
- Finally, provide the consistency of the study with the system's real (positive) and false (negative)

Algorithms 1 : Proposed HDP Algorithm

- **Input:** Input values for all parameters HashMap<Double Value, String class> which contains the all attributes values like {BP, Heart_Rate, Cholestrol, Stress, Sugar, ECG, Oxygen_saturation, Hemoglobin, CI} etc. Policy patterns {P1,P2,Pn}
- **Output:** Generate sample report for individual patient.
- **Step 1 :** for each read Hashmap

$$\text{Extracted\_Attribute[i][j]} \sum_{i=0,j=0}^{n} (a_{[i]}, a_{[j]}.....a_{[n]}, a_{[n].})$$

- **Step 2:** if Extracted_Attribute[j] similar to P[1]
  NormalPos = +1
  MasterLits1. Add ← (NormalPos)
- **Step 3 :** if Extracted_Attribute[j] similar to P[2]
- AbnPos = +1
- MasterLits2. Add ← (AbnPos)
- **Step 4 :** if Extracted_Attribute [j] similar to P[n]
  DenPos = +1
  MasterLits3. Add ← (DenPos)
- **Step 5:** end for
- **Step 6 :** calculate the fitness factor for all classes using below formula for all class list

$$f = \sum_{k=0}^{n} \frac{F(x)}{SumF(x)}$$

- **Step 7:** Weight _CurrentList[w] $= \frac{\text{MasterLits[i]}}{\text{TotalTest}} * 100$
- **Step 8 : S**ort _CurrentList[w] using desc order
- **Step 9 :** Recommend _CurrentList[0] for final class for patient profile.
- **Step 10 :** end procedure

- **Algorithm 2 : Naïve Bayes**
- **Input:** User input file data record which contains all body parameters sensor values, Patient id Pid, Timestamp T.
- **Output:** Classified label

- **Step 1:** Read R {All attributes} from current parameters.
- **Step 2:** Map with train features with each sample.
- **Step 3 :** calculate average weight of train DB with same evidences
- $AvgTScore = \sum_{k=0}^{n}(Sc)$
- **Step 4 :** evaluate AvgTScore> threshold
- **Step 5:** Return AvgTScore

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906192 |

- **Algorithm 3 : Q- Learning Algorithm**
- **Input:** inp[1…..n] all input parameters which is generated by sensors, Threshold group TMin[1…n] and TMax[1…n] for all sensor, Desired Threshold Th.
- **Output**: Trigger executed for output device as lable.
- **Step 1 :** Read all records from database (R into DB)
- **Step 2:** Parts [] ← Split(R)

$$\text{CVal} = \sum_{k=0}^{n} \textbf{Parts}[\textbf{k}]$$

- **Step 3:**
- **Step 4:** check (Cval with Respective threshold of TMin[1…n] and TMax[1…n])
- **Step 5:** T← get current state with timestamp
- **Step 6** : if(T.time> Defined Time)
- Read all measure of for penalty TP and reward FN
- Else continue. Tot++
- **Step 7:** calculate penalty score = (TP *100 / Tot)
- **Step8** : if (score >= Th)
- Generate event
- end for

Results and Discussions

The result section is the final stage of research that includes experimentation, the data confirmed, and the evaluation and discussions to be concluded. The research is conducted by conducting various experimentation to check the efficiency of the proposed algorithm in terms of various parameters such as computation time, dataset type, and distinct algorithm

input. A consternation matrix is a simple production analysis tool used in classification problems. Used to depict a prediction model's test result. Each matrix column represents instances in a projected class, while each row represents instances in an actual class.

Table 1: Confusion Matrix Analysis (Exp. 1)

Confusion matrix		Predicted	
		Negative	Positive
Actual	Negative	124	2
	Positive	5	122

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906192 |

IV. RESULT

Patient Login Page

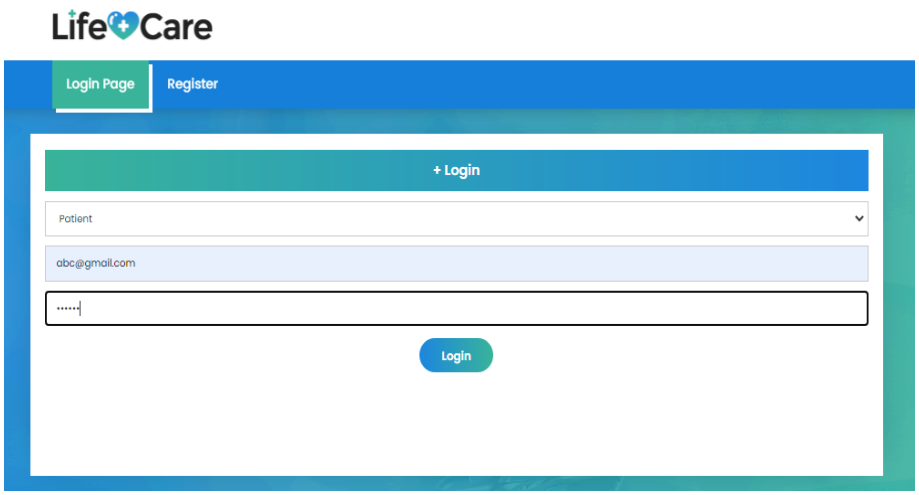


Figure.2: Patient Login Page

Patient Classification Page

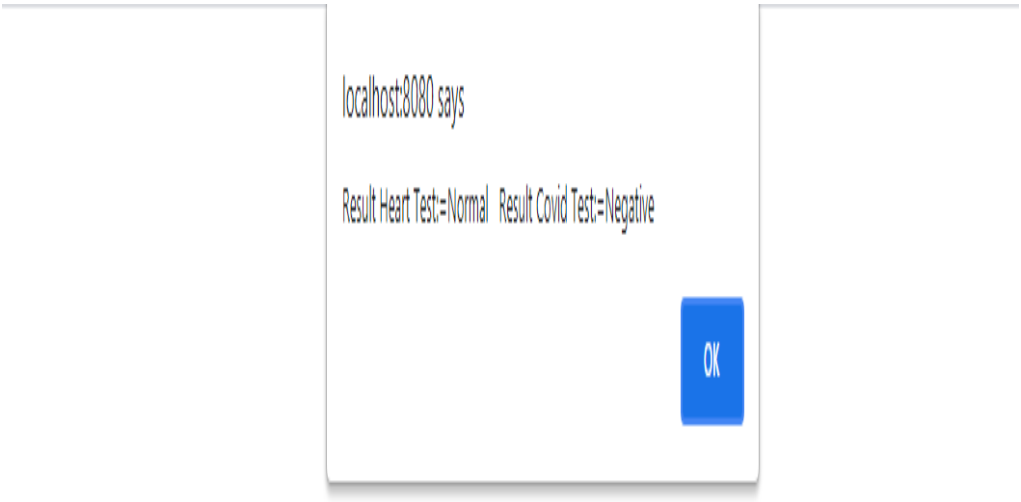


Figure 3: Patient classification Page

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906192 |

Hospital Add Beds Page

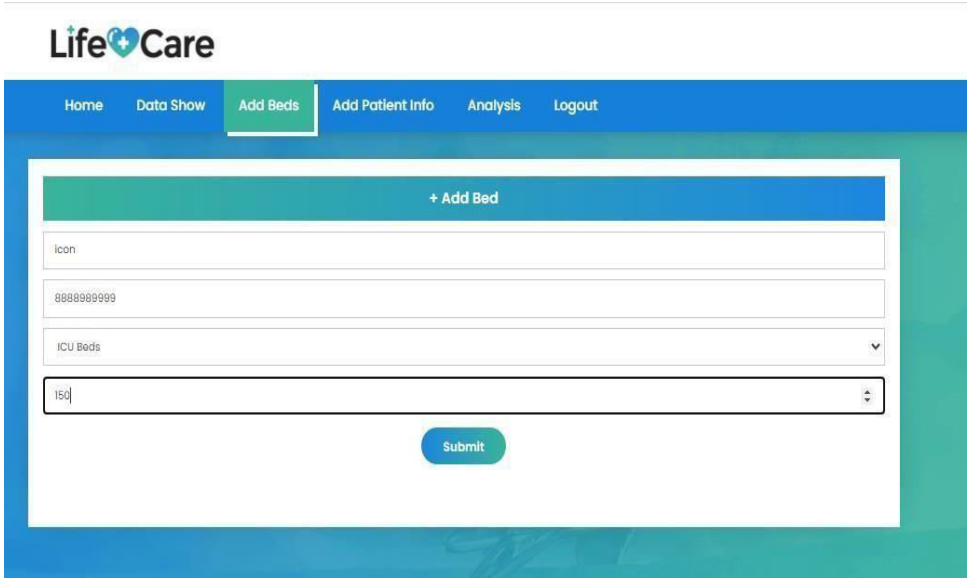
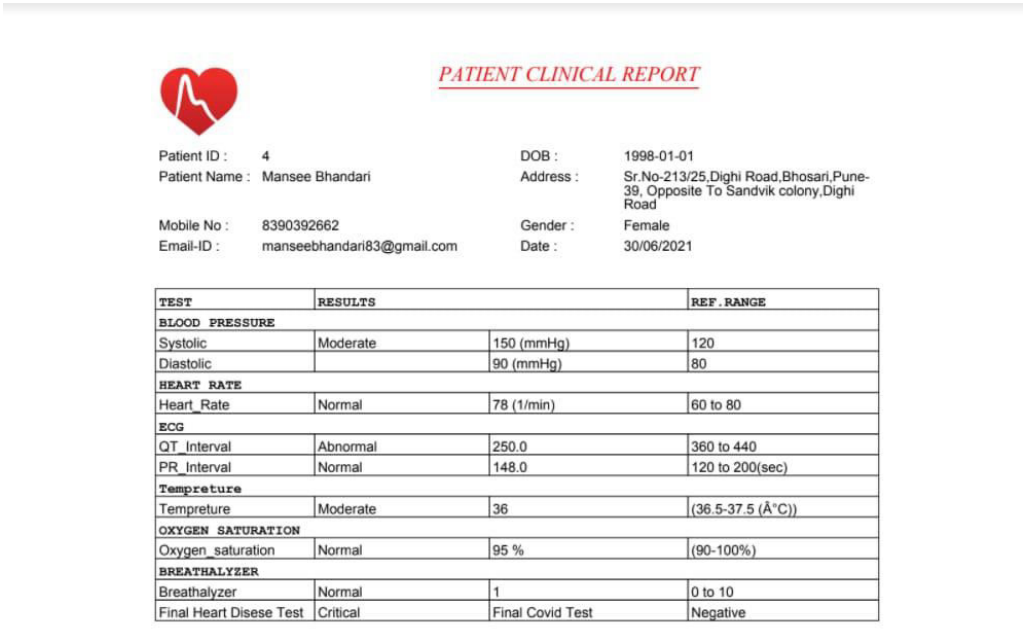


Figure 4: Hospital Add Beds Page

Final Report Page



PATIENT CLINICAL REPORT

Patient ID :	4	DOB :	1998-01-01
Patient Name :	Mansee Bhandari	Address :	Sr.No-213/25,Dighi Road,Bhosari,Pune-39, Opposite To Sandvik colony,Dighi Road
Mobile No :	8390392662	Gender :	Female
Email-ID :	manseebhandari83@gmail.com	Date :	30/06/2021

TEST	RESULTS		REF.RANGE
BLOOD PRESSURE			
Systolic	Moderate	150 (mmHg)	120
Diastolic		90 (mmHg)	80
HEART RATE			
Heart_Rate	Normal	78 (1/min)	60 to 80
ECG			
QT_Interval	Abnormal	250.0	360 to 440
PR_Interval	Normal	148.0	120 to 200(sec)
Tempreture			
Tempreture	Moderate	36	(36.5-37.5 (Â°C))
OXYGEN SATURATION			
Oxygen_saturation	Normal	95 %	(90-100%)
BREATHALYZER			
Breathalyzer	Normal	1	0 to 10
Final Heart Disese Test	Critical	Final Covid Test	Negative

Figure 5: Final Report Page

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906192 |

V. CONCLUSION

The proposed system would be a first step toward implementing an intelligent query handling programmer that could, in subsequent phases, not only react but also self-learn to better itself, thus improving not only customer service quality but also reducing human workload, increasing efficiency, and, of course, increasing the number of satisfied customersThe Internet of Things Architecture is basically a well-functioning technology because it provides the average man with the common platform who can afford it in many of the refinery areas at affordable costs. The research field referred to as healthcare is an important and inevitable part of our everyday lives in this abovementioned area. IoT offers a better forum for assembling sensory data under this medical domain and bringing them into smart devices. Super brilliance provides the poor with the best supervision.This is the central level of the android devices' intellectual thinking or could be called smart gadgets. Most of the tests are intrusive in the conventional approach, which gives patients the discomfort and induces dissatisfaction or carelessness towards their wellbeing. Heart Disease Prediction Method. The algorithm can be checked using different the number of parameters and check the accuracy. The concept component analysis algorithm can be used for attribute reduction.

REFERENCES

[1] T. Okuda and S. Shoda, "Financial Industry chatbot using AI," Fujitsu Sci. Tech. J., vol. 54, no. 2, pp. 4–8, 2018.
[2] S. S. Ademola, N. Rajabu, and F. O. Olaide, "chatbot to support intern in internship program," in AFRICAN HIGHER EDUCATION QUALITY ASSURANCE FORUM (EAQAN), 2018.
[3] Chatbot Pack, "Introduction to Chatbot 2019", [online] https://www.chatbotpack.com/what-is-chatbot-2019/
[4] K.Satheesh Kumar, S.Tamilselvan, B.IbrahimSha, S.Harish, "Artificial Intelligence Powered Banking Chatbot", International Journal of Engineering Science and Computing, March 2018
[5] Alex Wang, Kyunghyun Cho." BERT has an interactive interface, and It Must Speak: BERT as a Markov Random Field Language Model." ArXiv e-prints: 1902.04094v1, 2019
[6] AmeerRosic. "What is Cryptocurrency: Everything about crypto." Blockgeeks. blockgeeks.com/guides/what-is-cryptocurrency. Accessed Sept. 13, 2018
7] Ingole, Abhilasha, ShrikantAmbatkar, and SandeepKakde. "Implementation of health-care monitoring system using Raspberry Pi."2015 International Conference on Communications and Signal Processing (ICCSP).IEEE, 2015.
[8] Fahd SalehAlotaibi," Implementation of Machine Learning Model to Predict Heart Failure Disease", (IJACSA) International Journal of Advanced Computer Science and Applications,Vol. 10, No. 6, 2019.
[9] Lewlyn L. R. Rodrigues, Dasharathraj K Shetty, NiteshNaik , ChetanaBalakrishnaMaddodi and et al., "Machine learning in coronary heart disease prediction: Structural equation modelling approach ", Rodrigues et al., Cogent Engineering (2020), 7: 1723198.
[10] Mohd Ashraf, M. A. Rizvi and Himanshu Sharma, "Improved Heart Disease Prediction Using Deep Neural Network", Asian Journal of Computer Science and Technology , ISSN: 2249-0701 Vol.8 No.2, 2019, pp. 49-54 © The Research Publication.
[11] Sumit Sharma, Mahesh Parmar , "Heart Diseases Prediction using Deep Learning Neural Network Model ", International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-9 Issue-3, January 2020.

INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor: 7.542

doi cross ref

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

निस्केयर NISCAIR

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

9940 572 462 6381 907 438 ijircce@gmail.com

www.ijircce.com

Scan to save the contact details