Raushan Kumar Singh
Room SE-301, Satluj Hostel
IIT Ropar, Punjab - 140001
Bharat

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       td@spectrumultra.com

CAREER OBJECTIVE:

A position that seeks an ambitious and career conscious person, where acquired technical skills will be utilized towards diverse job responsibilities, continued growth and contribution to the society.

EDUCATION:

- ➤ **Level : Doctorate (PhD) - Ongoing**
  Field of Study: **Computer Science**
  Percentage: 8.5
  Institution**: IIT Ropar**
  Location: Punjab, India

- ➤ **Level : PG Degree (M.Tech),** Gold Medal
  Field of Study: **Embedded System**
  Percentage: 9.22 (CGPA)
  Class: **First Class with Distinction**
  Year of Pass: April 2014
  Institution**: PRIST University**
  Location: Pondicherry, India

- ➤ **Level : UG Degree (B.Tech)**
  Field of Study: **Electronics and Communication Engineering**
  Percentage: 9.13 (CGPA)
  Class: **First Class**
  Year of Pass: March 2012
  Institution**: PRIST University**
  Location: Pondicherry, India

WORK EXPERIENCE [9+ Years]:

Employer Position Website Duration			
Spectrum Solutions	Technical Director	www.spectrumultra.com	02/2013 – 03/2021
Spiro Solutions	Embedded Developer	www.spiroprojects.com	08/2012 – 03/2013

INDUSTRIAL EXPERIENCE:

National / International Conferences

Conference Name	Year	Organizer	Host	Role
International Conference on Recent Advancements in the Field of Computer Science and Mathematics (ICRATFCM-2017)	2017	Spectrum Solutions Verification Link http://www.spectrum ultra.com/icratfcm-.html	CH.S.D St. Theresa's College for Women, Eluru, A.P, India 	Resource Person
International Conference on Recent Innovations in Computer and Mathematics ICRICM-2017	2017	Spectrum Solutions Verification Link http://www.spectru m ultra.com/icricm 2017.html	J.M.J College for Women (Autonomous), Tenali, A.P, India 	Resource Person
International Conference on Recent Innovations in Arts, Science and Technology ICRIAST-2018	2018	Spectrum Solutions Verification Link http://www.spectru m ultra.com/icriast 2018.html	Lord Venkateshwaraa Engineering College, Kanchipuram, T.N, India 	Resource Person

Second International Conference on Recent Innovations in Arts, Science and Technology ICRIAST 2 -2018	2018	Spectrum Solutions Verification Link http://www.spectrum ultra.com/second icriast-2018.html	Lord Venkateshwaraa Engineering College, Kanchipuram, T.N, India	Resource Person

International Conference on Innovative Domains of Mathematics and Digital Technology ICIDMDT-2018	2018	Spectrum Solutions Verification Link http://www.spectrum ultra.com/icidmdt 2018.html	CH.S.D St. Theresa's College for Women, Eluru, A.P, India 	Resource Person
National Conference on Transforming Operational Business to Strategic Business NCTOBSB – 2019	2019	Spectrum Solutions Verification Link http://www.spectrum ultra.com/nctobsb- -- 2019.html	Sacred Heart College , Tirupattur, T.N, India 	Organizing Committee Member
National Conference on Advances in Computational Fluid Dynamics NACFD - 2019	2019	Spectrum Solutions Verification Link http://www.spectrum ultra.com/nacfd 2019.html	Andhra Kesari Tanguturi Prakasam University, Ongole Campus, India 	Organizing Committee Member
National Conference on Performance of Development Programmes in India Issues and Challenges NCPDPI - 2019	2019	Spectrum Solutions Verification Link http://www.spectrum ultra.com/ncpdpi 2019.html	St.Joseph's College For Women (Autonomous), Vizag, A.P, India 	Organizing Committee Member

National Conference on Winning the Global Business War Through Artificial Intelligence NCWGBWTAI - 2019	2019	Spectrum Solutions Verification Link http://www.spectrum ultra.com/ncwgbwt ai -2019.html	Sacred Heart College , Tirupattur, T.N, India	Organizing Committee Member

Workshop/Guest Lecture/Seminar/Faculty Development Programs

Event Name Year Host Role			
Workshop MATLAB Communication and Image Processing	20 Sep 2013	Achariya College of Engineering Technology	Resource Person
Workshop 1 Day Workshop on Network Security and Portable Apps	22 Sep 2013	PRIST University Pondicherry, India	Resource Person
Workshop 2 Days Workshop on MATLAB tools and Simulink	15 & 17 Feb 2014	IFET College of Engineering, T.N, India	Resource Person
Guest Lecture Demo on PCB Design	18 Sep 2014	IFET College of Engineering, T.N, India	Resource Person
Guest Lecture Network Security and Portable Apps	27 Sep 2014	Surya Group of Institutions School of Engineering and Technology	Resource Person
Guest Lecture Practical implementation of MATLAB in various domains	11 Feb 2015	IFET College of Engineering, T.N, India	Resource Person
Guest Lecture Graphical User Interface (GUI) in MATLAB TOOLS	18 Aug 2015	IFET College of Engineering, T.N, India	Resource Person

Workshop 2 Days National Level Workshop on Cloud Computing and Big Data Analytics **(Sponsored by TNSCST)**	27 & 28 Aug 2015	Periyar Govt Arts College, Cuddalore, T.N, India	Resource Person
Guest Lecture Mobile Computing	30 Dec 2015	Manakula Vinayagar Institute of Technology	Resource Person
Workshop National Level Workshop on Cloud Computing and Its Global Impact	20 Sep 2016	St Joseph's College of Arts and Science , Cuddalore, T.N, India	Resource Person

Guest Lecture Research Challenges in Optical Communication	10 Sep 2016	IFET College of Engineering, T.N, India	Resource Person
Workshop National Level Workshop on Cloud Computing and Its Global Impact	20 Sep 2016	St Joseph's College of Arts and Science , Cuddalore, T.N, India	Resource Person
Workshop 2 Days Workshop on Web Design and its practical impact	17 & 18 Oct 2016	Ch.S.D.St.Theresa's College for Women (A) Eluru, A.P, India	Resource Person
Workshop MATLAB workshop	16 Dec 2016	Theivannai Ammal College for Women, Villupuram, T.N, India	Resource Person
Guest Lecture MATLAB and its applications	6 Feb 2017	RAAK Arts and Science College	Resource Person

Project Expo Internal Project Expo Technophilia'17 for Electronics and Communication Deptartment	25 Mar 2017	IFET College of Engineering, T.N, India	Jury of Project Expo
Seven Days National Level Short Term Course on Scilab, Latex and R Programming Department of Mathematics	23-29 July 2018	Pondicherry University, India	Resource Person for Scilab
Workshop 4 Days Workshop on MATLAB and Its Practical Implementations	3-6 Sep 2018	Shri Sakthikailassh Women's College, Salem, T.N, India	Resource Person
Internship Programme 3 days on MATLAB & ROBOWAR	17 & 21 Aug 2018	Ch.S.D.St.Theresa' s College for Women (A) Eluru, A.P, India	Resource Person
Workshop Essential of Thesis Writing and Hands on Training in Octave	8 Feb 2019	Theivannai Ammal College for Women, Villupuram, T.N, India	Resource Person

Workshop An Extensive Workshop on Photoshop with Hands on Training and Live Graphical Designing	14 &15 Feb 2019	Ch.S.D.St.Theresa' s College for Women (A) Eluru, A.P, India	Resource Person
Internship Intracollegiate Internship and Hands on training on OCTAVE	19 &21 Aug 2019	Ch.S.D.St.Theresa' s College for Women (A) Eluru, A.P, India	Resource Person
Workshop Robowar- The Robotic Battle	26-28 Aug 2019	MDDM College Muzaffarpur ,Bihar India	Resource Person

Workshop Journal Paper Creation and Publication Paradigm	29 & 30 Aug 2019	MDDM College Muzaffarpur ,Bihar India	Resource Person
Faculty Development Program The Practical Paradigm of Internet of Things (IoT)	19 June 2020	JMJ College for Women , Tenali, A.P, India	Resource Person
National Level Webinar Authentic Journal Identification and Publication as per the Recent Guidelines of Bihar University	2 Sep 2020	RBBM College Muzaffarpur ,Bihar India	Resource Person
Internship Programme Digital Marketing	23 7 30 Nov 2020	Ch.S.D.St.Theresa' s College for Women (A) Eluru, A.P, India	Resource Person
National Level Webinar Mobile Phone Addiction and Mental Health	4 Feb 2021	Ch.S.D.St.Theresa' s College for Women (A) Eluru, A.P, India	Resource Person
International Webinar Webinar on IOT	27 Mar 2021	Bule-Hora University Ethiopia	Resource Person

PATENTS PUBLISHED

S. No.	Application No.	Title	Applicant	Date of Publishing in IPR (U/S 11A)

1	202041057559	Recommendation of Doctors based on the Ratings and Tracking Status of Doctors Availability to handle the pandemic situations	Raushan Kumar Singh	05-02-2021
2	202041030263	IoT Based Intelligent Solar Water Heater	Raushan Kumar Singh	07-08-2020
3	202041041120	An Automated and integrated mobile app for handling road accident and emergency situation smartly	Raushan Kumar Singh	09-10-2020

BOOK PUBLISHED:

- **Title**
  Emerging and Contemporary issues and Challenges of Education and Society – Offering Technology 4.0 solutions

- **ISBN –** 978-93-90879-41-0

- **DOI –** 10.31995/BOOK.AB192-A21.CHAPTER 8

- **Publication – Sep 2021**

ACADEMIC/NATIONAL/INTERNATIONAL AWARD:

- **Title**
  Indo-Nepal Samrasta Award 2018
- **Recognition**
  For excellence in the field of academics and technical skills
- **Awarded by**
  First Vice President of Nepal & Judge of Supreme court of Nepal
- **Venue**
  Russian Culture Centre, Kathmandu, Nepal

RESEARCH AND DEVELOPMENT WORKS:

S. No	Project Title	Video Link
1.	*Portable Stress analysis Tool with Voice Assistance*	https://www.youtube.com/watch?v=_WhuywiiV8w&t=131s
2.	*MAX 30100/30102 & MLX 90614 integration and sensor implementation to viral infection detection and IoT live update*	https://www.youtube.com/watch?v=O68QKvqi_Lo&t=443s
3.	*Solar panel cleaner mechatronics association with IoT*	https://www.youtube.com/watch?v=mCDWi0wOVPE&t=40s

4.	*Heart attack detection and alert system using IoT*	https://www.youtube.com/watch?v=anKFA0TVo7U&t=231s
5.	*ATM protection system using IoT*	https://www.youtube.com/watch?v=7xyEK8cYNHI
6.	*Sewage cleaner robotic system for smart cities*	https://www.youtube.com/watch?v=bx3_oY7PlgM
7.	*Coordinate Access System for Live Video Acquisition*	https://www.youtube.com/watch?v=fcuV_9870xc&t=302s
8.	*Foot Ulcer and Blood Clot Synthesizer*	https://www.youtube.com/watch?v=IwDFd5ilpKc
9.	*Accesocket - A RFID accessible switch*	https://www.youtube.com/watch?v=OLShFrelgDg&t=148s
10.	*An IoT approach to pesticide spray robot*	https://www.youtube.com/watch?v=gmayyIA1tO0&t=1s
11.	*Forest Fire and Elephant Attack Detection & Alert*	https://www.youtube.com/watch?v=c0m4Op6e0cI&t=64s
12.	*Blind Stick with SMS*	https://www.youtube.com/watch?v=7fMr8LGDPMU&t=2s
13.	*Automatic Bus entry exit on display with route for bus stands*	https://www.youtube.com/watch?v=IWOL6smEMts
14.	*Pollution Based Traffic Lights Automation System*	https://www.youtube.com/watch?v=aRa-UlnYBPs&t=210s
15.	*Piezoelectric and Vibration based power production system*	https://www.youtube.com/watch?v=qw2hdQI_IHk

and 100s of other developments.

Paper Title	Journal Name	ISBN
Springer - Portable Stress Measurement and Analysis System (PSMAS): The Correlation of Body and Mind Analysis Using GSR Sensor (2022) **DOI: 10.1007/978-981-19-4300-3_11** **Contribution – Development of Hardware**	Emerging Electronics and Automation	978-981-19-4300-3

Abstract

Agriculture is the most important occupation all over the world. At the global level, the crops produced get damaged by pests and pathogens by 10 to 40 per cent. If the proper pesticides are not used this data can reach up to 70-90% which can cause severe food crisis and all economy might crash. To overcome the situation the immediate solution is the pesticides. Pesticides were used to reduce the damage of crops to much extent. The use of pesticides now created a new problem i.e. cancer in farmers. Pesticides are nothing but a combination of hundreds of synthetic and natural chemicals. All over the world mainly three chemicals are used as pesticides linden, arsenic and ethylene oxide. These are the topmost chemicals categorized as carcinogens as stated by the International Agency for Research on Cancer (IARC). Whenever farmers use the pesticides in any form irrespective of what they use as precaution majors some amount of pesticides comes in contact with the farmer. The protective gears like masks, gloves, shoes and glasses can protect the pesticides coming in contact with the human but 100% stoppage is impossible to second problems is the farmers mostly avoid the usage of protective gears due to its cost and the uneasy feeling to wear it during the work. We plan to create a hybrid system. If IoT and Robotics to overcome the above-stated problem our robot is equipped with the sprayer and mobile phone controlled navigation system. It can show its locations on Google map as well. Farmers can operate the robot from a safer distance. They can spray the pesticides and at the same time upload all the data logs of the IoT cloud server. The time of robots started how many time and for how much time the pesticides were sprayed can be monitored from any remote location throughout the world. This solves the problem of farmers coming in contact with pesticides as well as online monitoring of work done efficiently. The robotics system operates over Atmega 328p Pu microcontroller and IoT system over ESP8266 module of Wi-Fi-based internet system.

Paper Title	Journal Name	ISSN
* Diabetic Foot Ulcer Treatment Device Using Peltier and Embedded Electronics (2020) **Contribution – Development of Hardware**	Journal of Physics : Conference Series	ISSN:1742-6588 E-ISSN:1742-6596

Abstract

People's degrading lifestyle reflects their health graphs and occurrence of different disease in their bodies. With different food habits and exercise patterns the endurance capacity of the body changes. Foot ulcer is a disease quite common today among Indians around. The foot ulcer creates a threat to the movement for human beings. It is a deep infected sore or damage in the foot sole commonly caused by nerve/skin damage. Several infections in the foot may also result in leg amputations. Over 3 million people are infected with diabetes which is a big number to worry about. The CPR (Crude Prevalence Rate) for cities is around 9% of the population whereas in village areas the occurrence is around 3 percent [1]. Though the foot ulcer prevalence of diabetic patients in India is 3% which looks small but it is a big number. Our proposal is an embedded system innovation to develop a foot ulcer treatment system. It deals with the combined approach to embedded electronics and biomedical engineering to overcome the situation. We create a footrest equipped with Peltier, vibrator, and UV rays to overcome the issue. It is the first of its kind foot ulcer treatment equipment that can solve the issue. We also used the android technology to provide the vocal user interface to help the user. Clear instructions are displayed and spoken upon usage to the patients. The result obtained on the patients are highly acceptable and recommended for both urban and rural populations. The Atmega 328 P PU microcontroller is interfaced with the HC-05 Bluetooth and Vibrators through Relays to perform the task. The microcontroller acts as the overall think-tank to control and coordinate the overall system.

Paper Title	Journal Name	ISSN
* Coordinate Access System for Live Video Acquisition (2020) **Contribution – Development of Hardware**	Journal of Physics : Conference Series	ISSN:1742-6588 E-ISSN:1742-6596

Abstract

Biometric systems are the most advanced access technology developed so far in the 21st century. Today most of the commercial and private entries are protected by biometric recognition systems like fingerprint scans facial recognition, retina scans, voice matching, etc. Biometric scans are considered the most secure access technology so far. Our paper is to examine whether they are secure? Should we rely on them with our hard-earned money and social identity? We aim to create a security system without actually using the biometric scans. The system is an advancement of the biometric system but with better accuracy and intelligence. We interface image acquisition tools to live track the red color things. The web camera or inbuilt system lens can be used as the acquisition system. When the red color object is moved in front of the lens it shows the corresponding coordinate of the object shown. We use these x and y coordinate of the objects as the authentication points. If the correct value grant access is $120 \leqslant x \leqslant 122$ means the system grants permission only if the value of x=120,121 or 122 is obtained. Now, this is tricky. Even if you know the correct value also, it is very difficult to bring the correct point. Think about if you don't know the point and it is also possible to make it much difficult by adding y coordinate so if the desired point is x=10, y=12 (10, 12) it is way more difficult. Each point is a possible password candidate and the screen of any device have megapixels where 1 Megapixel=106 pixels. Each pixel is a possible key or password entry. It can keep all our information safe and secure. We use a microcontroller and motor driver connected gate to demonstrate the result.

Paper Title	Journal Name	ISBN
* Springer - Information and Communication Technology for Development for Africa (2019) **DoI - 10.1007/978-3-030-26630-1_23** **Contribution – Development of Hardware**	Communications in Computer and Information Science	978-3-030-26630-1

Abstract

 Eyes considered as the most precious organ of the human body, being blind is considered one of the biggest physical disaster for the human. As per the survey, 39 Million people are blind throughout the world. These blind people go through several challenges throughout their life 24 × 7. Some of the major critical issues they face are their movement through the lanes especially in dense traffic areas, they are highly vulnerable against robbery, kidnapping, and molestation due to their impairment, and they can't find they are moving through dark or lightened lanes. These are some of the major issues they face which can be mitigated with the efficient use of technology and electronic components. We can enable the walking sticks of the blind person to act as the Stun Gun which produces 20 KV in emergency condition for their protection using Electric Arc Generator and power source. Using Ultrasonic Sensor provides the estimation of the obstacle and vibrates the stick if comes nearby any obstacle below the threshold limit. The major electronic components we use are Ultrasonic Sensor (HC-SR04), Arduino Nano, Electric Arc Generator, LDR, Dry cell, and Vibration Motor. We can design an efficient blend of technology and logic to short out the issues of the blind community which will be our gift to humanity.

Paper Title	Journal Name	ISSN
A tribrid Paradigm against Inundation wild animal attack and fire disasters (2019) **DOI - 10.35940/ijitee.B1111.1292S319** **Contribution – Development of Hardware**	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	ISSN: 2278-3075

Abstract

In recent years the whole world witnessed several natural and manmade disasters. 2015 Earthquake in Nepal and India with 7.8 magnitudes which killed 9000 people and injured 22000 as per Government Records. 2018 Flood in North Korea left 10,700 people as per the report of International Federation of Red Cross (IFRC) and Wikipedia. Floods in India 2018, killed more than 300 in the state of Kerala. 2016, Forest fire in Uttarakhand, India burnt 10,000 acres of Forest area. In between April 2014 – May 2017, 1,144 people killed by wild animals as per the report of Indian Environment Ministry (IEM). All the reports stated above represents indications that regardless of several advancements and technical skill development to disaster management is not considered efficiently worldwide. There are plenty of disasters which could be taken care of much efficiently and wisely. If we see the disasters like flood, fire and animal attack we can easily notice that they are manageable to much extent with expert technical advancements. Our paper is about the disaster management of the tribrid series (Flood, Fire, Wild Animal Attack) with the eminent usage of technology. We create a flood sensing unit, a fire detection unit, and a wild animal detection unit with the help of sensors and we create the alert and remedial action unit to protect the common men from sub disasters. We use Embedded and IOT technologies together to provide worldwide coverage and accurate detection of the calamities.

Paper Title	Journal Name	ISSN
An Efficient Utilization of Robotics and IoT to Overcome Threats of Pesticides (2019) **DOI - 10.35940/ijitee.B1101.1292S319** **Contribution – Development of Hardware**	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	ISSN: 2278-3075

Abstract

Agriculture is the most important occupation all over the world. At the global level, the crops produced get damaged by pests and pathogens by 10 to 40 per cent. If the proper pesticides are not used this data can reach up to 70-90% which can cause severe food crisis and all economy might crash. To overcome the situation the immediate solution is the pesticides. Pesticides were used to reduce the damage of crops to much extent. The use of pesticides now created a new problem i.e. cancer in farmers. Pesticides are nothing but a combination of hundreds of synthetic and natural chemicals. All over the world mainly three chemicals are used as pesticides linden, arsenic and ethylene oxide. These are the topmost chemicals categorized as carcinogens as stated by the International Agency for Research on Cancer (IARC). Whenever farmers use the pesticides in any form irrespective of what they use as precaution majors some amount of pesticides comes in contact with the farmer. The protective gears like masks, gloves, shoes and glasses can protect the pesticides coming in contact with the human but 100% stoppage is impossible to second problems is the farmers mostly avoid the usage of protective gears due to its cost and the uneasy feeling to wear it during the work. We plan to create a hybrid system. If IoT and Robotics to overcome the above-stated problem our robot is equipped with the sprayer and mobile phone controlled navigation system. It can show its locations on Google map as well. Farmers can operate the robot from a safer distance. They can spray the pesticides and at the same time upload all the data logs of the IoT cloud server. The time of robots started how many time and for how much time the pesticides were sprayed can be monitored from any remote location throughout the world. This solves the problem of farmers coming in contact with pesticides as well as online monitoring of work done efficiently. The robotics system operates over Atmega 328p Pu microcontroller and IoT system over ESP8266 module of Wi-Fi-based internet system.

Paper Title	Journal Name	ISSN
Object Recognition Using Shift Invariant Artificial Neural Network (2019)	Think India Journal	ISSN: 0971-1260
Interference Cancellation and Rate Maximization in a Cognitive Networks (2013)	International Journal of Research in Engineering & Advanced Technology (IJREAT)	ISSN: 2230-8791

SOFTWARE EXPERTISE:

· MATLAB/SIMULINK
· Scilab
· Octave
· Packet Tracer
· Proteus Design Simulator
· Livewire
· Arduino IDE
· Circuit.io
· Android Studio
· Web and Blog Builders
· Hyper Terminal
· Photoshop /Shortcut & Apower

PROGRAMMING SKILLS:

· Embedded C/C++

· Python

ACADEMIC REFEREES:

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Institution : Rajiv Gandhi College of Engineering and Technology (RGCET) **City :**
Pondicherry, India

Name : Dr. B. Annapurna
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Mail Id. : annapurnagandrety@gmail.com
Designation : Associate Professor
Institution : Aditya College of Engineering
City : Surampalam, A.P, India

PERSONAL SKILLS:

> Comprehensive Problem Solving Abilities.
> Excellent Verbal & Written Communication Skill.
> Ability to Deal With People Diplomatically.
> Willingness to Learn.
> Team Facilitator.
> Hard Worker
> Punctuality Keeper.

PERSONAL DETAILS:

Name : **Raushan Kumar Singh**
Father Name : Mr. B.K Singh
Sex : Male
Nationality : Indian
Date of Birth : 18-08-1991
Marital Status : Married.

Languages Known : English, Hindi & Tamil
Permanent Address :   1st Floor
                        SBI Bank
                        Ariyankuppam
                        Pondicherry - 605007

Declaration

       Hereby I declare that the information's furnished above are true to the best of my knowledge.

Yours truly,

(Raushan Kumar Singh)

Date : 12/08/2023
Place : Ropar