NEWSLETTER · ISSUE 01

DEPARTMENT OF ELECTRICAL ENGINEERING

ELECTRO IMPRESSION

Guru Nanak Institute of Technology

An Autonomous Institute, Affiliated to MAKAUT · Approved by AICTE · NAAC A+ · NBA Accredited (UG)

Academic Highlights

JANUARY – JUNE 2024

"Powering ideas, engineering the future — a chronicle of learning beyond the classroom."

INSIDE THIS ISSUE

01 Message from the Principal
02 Message from the HOD, EE Department
03 Vision & Mission
04 PEOs & Program Specific Outcomes
05 FDP / Seminar / Workshop / Conference
06 Industry Visits & Student Outreach
07 Faculty & Student Achievements
08 Awards & Recognitions
09 Publications, Conferences & Patents

FACULTY DEVELOPMENT PROGRAMS · INDUSTRY VISITS · SEMINARS · ALUMNI MEET · ACHIEVEMENTS · PUBLICATIONS & PATENTS

NBA ACCREDITED PROGRAMME · NAAC A+ INSTITUTE

Editorial Faculty Members

1. Dr. Debasree Saha (Asso. Prof., Dept. of EE, GNIT)
2. Ms. Subhra Sen (Senior Technical Assistant, EE, GNIT)

Editorial Student Members

1. Arpan Das (2nd year, EE)
2. Nivedita Saha (1st year, EE)
3. Attundra Ghosh (2nd year, EE)
4. Payel Chakraborty (2nd year, EE)

FROM THE LEADERSHIP

Messages



MESSAGE FROM THE PRINCIPAL

I feel extremely happy that the Department of Electrical Engineering, GNIT is going to be published a biannual Newsletter (ELECTRO IMPRESSION) for the academic year (Jan - June 2024). This Newsletter is a great initiative that will showcase the academic and other activities of the EE Dept.

I want to use this chance to extend my congratulations to the department, contributors, and editorial boards for their diligent efforts in producing such a technical publication. Additionally, I would like to commend the department of EE for their accreditation by NBA and give a special acknowledgement to all the faculty and staff for their exceptional work in achieving NAAC A+.

I would also like to extend my best wishes to the faculties and students of the department. I am confident that with their dedication and hard work, they will continue to achieve great success in their endeavors.

Prof. (Dr.) Swarup Kr. Mitra
Principal, GNIT



MESSAGE FROM THE HOD (EE)

It is a matter of immense pleasure to share the Jan–June 2024 edition of 'Electro Impression.' The newsletter presents the collective academic and professional journey of the Department of Electrical Engineering and highlights the enthusiasm with which our students and faculty have participated in learning, research, innovation and outreach.

During this period, the department organized an international FDP, technical seminars, industrial visits, student activities and an alumni meet, while our faculty members and students earned awards and contributed through publications, conferences and patents. These accomplishments demonstrate our commitment to quality education, emerging technologies, professional development and sustainable engineering.

I congratulate every contributor and the editorial team for preserving these milestones in a meaningful form and wish our students and faculty continued success.

Dr. Barnali Kundu
HOD, EE Department

OUR DIRECTION

Vision, Mission, PEOs & PSOs

OUR VISION

To produce new generation technologists and entrepreneurs with innovation and advanced research by inculcating world class education to meet industry expectations and impart sustainable growth of the society in global perspective.

Mission

DM1 To impart quality education and innovative teaching learning methodologies.	**DM2** To develop professionals with the ability of critical thinking and innovativeness to face the real-life challenges in their respective domain.
DM3 To inculcate an urge of entrepreneurship, research and pursue higher studies.	**DM4** To imbibe the spirit of moral values and ethics for the sustainable growth of the society.

Program Educational Objectives (PEOs)

Three to five years after graduation, the Department of EE expects its four-year B. Tech in Electrical Engineering program graduates to have achieved the following:

PEO1 To implant strong foundation in Science, Mathematics and Electrical Engineering to become successful professionals.	**PEO2** To impart knowledge on emerging technologies and entrepreneurship skills to produce future leaders.
PEO3 To train students in developing ethical attitudes, strong communication skills and capacity to relate engineering issues in social and environmental context.	**PEO4** To facilitate opportunity to work in a team in interdisciplinary projects for building leadership qualities.

Program Specific Outcomes (PSOs)

PSO1 To explore the ideas, methodologies and cutting-edge technologies in Renewable Energy and Electric Vehicles for gaining competence to solve energy related problems.	**PSO2** To analyze, design and provide an engineering solution applying knowledge of Embedded System, Smart Grid, Power Electronics and Electric Drives.	**PSO3** To use modern software tools for simulation, analysis and designing electrical and electronic Systems.

FDP / SEMINAR / WORKSHOP / CONFERENCE

Five Days International FDP — "AI for Sustainable Energy in Society 5.0" | *15–19 April, 2024*





Seminar on "Employability Skills set for roles in The Renewable Energy Sector" | *8 February, 2024*





Poster Making Competition — Energy Conservation Day | *8 January, 2024*





Poster Making Competition in celebration of Energy Conservation Day to promote awareness about the crucial need to "Save Electricity and Save Water".

INDUSTRY VISITS & STUDENT OUTREACH

Industry Visit — Belgharia 33/11 kV Substation | *30 April, 2024*





Industry Visit for 2nd and 3rd year Electrical Engineering students at the Belgharia 33/11 kV Substation operated by the West Bengal State Electricity Distribution Company Limited (WBSEDCL).

One-Day Industrial Visit — 1 MWp Canal-Top Solar Power Plant, GNIT | *9 February, 2024*

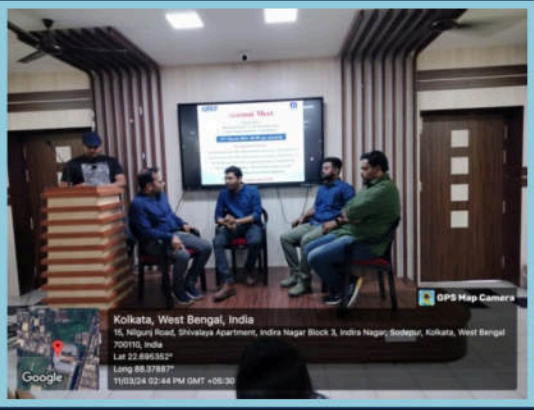




Organized in association with Agni Green Power Ltd., Newtown, Kolkata.

Departmental Alumni Meet | *11 March, 2024*





FACULTY & STUDENT ACHIEVEMENTS

FOSET 14th Academic Meet — 1st Runner-Up | *12 May, 2024*

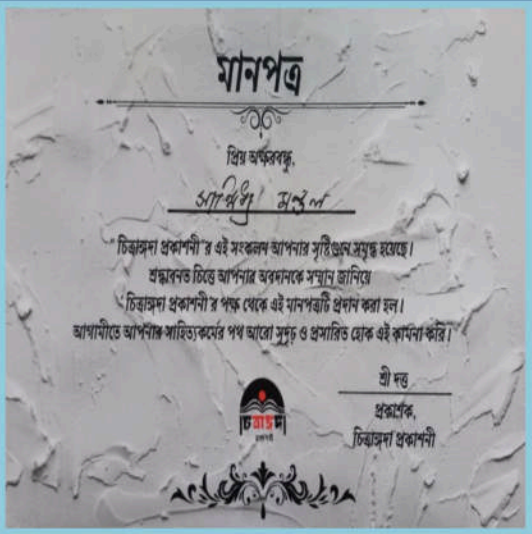

14TH INTER UNIVERSITY ENGINEERING, SCIENCE & TECHNOLOGY ACADEMIC MEET 2024 & INNOVATIVE MODEL COMPETITION FOR A SUSTAINABLE SOCIETY
12TH MAY, 2024
Organised by
FORUM OF SCIENTISTS, ENGINEERS & TECHNOLOGISTS (FOSET)
15N, NELLI SENGUPTA SARANI (LINDSAY STREET), KOLKATA - 700087
In association with:
MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY (MAKAUT)
INDIAN SOCIETY FOR TECHNICAL EDUCATION, WEST BENGAL SECTION
ASSOCIATION OF ENGINEERS, INDIA
JIS College of Engineering
CERTIFICATE
This is to certify that Arpan Das of Guru Nanak Inst. of Technology presented a paper / model titled Design & Development of an IOT - Management System in Electrical Engg. & Instrumentation in the 14TH INTER UNIVERSITY ENGINEERING, SCIENCE & TECHNOLOGY ACADEMIC MEET 2024 & INNOVATIVE MODEL COMPETITION FOR A SUSTAINABLE SOCIETY organised by Forum of Scientists, Engineers and Technologists (FOSET) in JIS College of Engineering Campus on 12th May, 2024. The paper / model has been awarded 1st/ 2nd/ prize in the stream.
Date : 12.05.2024
Kolkata
PROF PARTHA SARKAR, Principal, JIS College of Engineering
MR. PRABHAT KUMAR HORA, Organising & General Secretary, FOSET
PROF. JAYA SIL, Chairperson, Organising Committee


14TH INTER UNIVERSITY ENGINEERING, SCIENCE & TECHNOLOGY ACADEMIC MEET 2024 & INNOVATIVE MODEL COMPETITION FOR A SUSTAINABLE SOCIETY
12TH MAY, 2024
Organised by
FORUM OF SCIENTISTS, ENGINEERS & TECHNOLOGISTS (FOSET)
15N, NELLI SENGUPTA SARANI (LINDSAY STREET), KOLKATA - 700087
In association with:
MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY (MAKAUT)
INDIAN SOCIETY FOR TECHNICAL EDUCATION, WEST BENGAL SECTION
ASSOCIATION OF ENGINEERS, INDIA
JIS College of Engineering
CERTIFICATE OF PARTICIPATION
This is to certify that ARPAN DAS of Gurunanak Institute of Technology presented a paper / model titled Design and Development of an IOT Governed Smart Battery Management System in ELECTRICAL ENGINEERING, INSTRUMENTATION ENGINEERING in the 14TH INTER UNIVERSITY ENGINEERING, SCIENCE & TECHNOLOGY ACADEMIC MEET 2024 & INNOVATIVE MODEL COMPETITION FOR A SUSTAINABLE SOCIETY organised by Forum of Scientists, Engineers and Technologists (FOSET) in JIS College of Engineering Campus on 12th May, 2024.
Date : 12.05.2024
Kolkata
PROF PARTHA SARKAR, Principal, JIS College of Engineering
MR. PRABHAT KUMAR HORA, Organising & General Secretary, FOSET
PROF. JAYA SIL, Chairperson, Organising Committee

2nd Year and Final Year students received the 1st runner-up award in the 14th Academic Meet of the Forum of Scientists, Engineers & Technologists (FOSET), held at JIS College of Engineering (JISCE), West Bengal, under the guidance of Dr. Barnali Kundu.

Achievement of Sannidhya Mondal, 2nd Year EE


SONY
4th Beyond Vision Grand Exhibition
& Photography Competition
Spectacle - 2024
Academy of Fine Arts, Kolkata
18-24 February, 2024
Organised by : SKBVP Society (Govt. Regd)
Certificate of Participation
This certificate is proudly conferred upon
Mr. Sannidhya Mondal for his active participation in this
4th Beyond Vision Grand Photography Exhibition.
We wish him every success in life.
SRISHTI
lowepro
Manfrotto
GITZO
NARSINGH
WATER
WILDLIFE
Tanvi's


মানপত্র
প্রিয় অক্ষরবন্ধু,
"চিত্রাঙ্গদা প্রকাশনী"র এই সংকলন আপনার সৃষ্টিজ্ঞানসমৃদ্ধ হয়েছে।
শ্রদ্ধাবনত চিত্তে আপনার অবদানকে সম্মান জানিয়ে
"চিত্রাঙ্গদা প্রকাশনী"র পক্ষ থেকে এই মানপত্রটি প্রদান করা হল।
আগামীতে আপনার সাহিত্যকর্মের পথ আরো সুদৃঢ় ও প্রসারিত হোক এই কামনা করি।
শ্রী দত্ত
প্রকাশক,
চিত্রাঙ্গদা প্রকাশনী

Certificate of Participation at the 4th Beyond Vision Grand Exhibition & Photography Competition.

Faculty Achievement

Ph.D. Awarded

Mr. Suman Ghosh has been awarded the Ph.D. degree from IIEST, Shibpur in the month of February, 2024.

AWARDS & RECOGNITIONS

JIS Samman & JIS Puraskar 2024 — Faculty Honours



Mr. Susovan Dutta received JIS Samman 2024 in the category "Faculty with maximum no. of Patents".



Dr. Debashree Saha received JIS Puraskar 2024 in the category "Faculty with highest no. of Students Publication".

JIS Puraskar 2024 — Faculty & Student Honours



Dr. Aveek Chattopadhyay received JIS Puraskar 2024 in the category "Faculty with highest number of publication".



Mr. Ramanuj Bhowmick received JIS Puraskar 2024 in the category "Students with highest no. of publication".

Special Award from KMRCL





Mr. Krishnendu Jana and Mr. Parnab Goswami received a special award from KMRCL (Kolkata Metro Railway Corporation Limited) for contribution in Phase 2A section for underwater East West Metro.

News coverage: ETV Bharat report on the underwater metro

PUBLICATIONS, CONFERENCES & PATENTS

Journal Publications (Scopus Indexed)

- **Aveek Chattopadhyaya**, Suparna Biswas, Sayan Roy Chaudhuri, Sumedha Bhattacharya, Gautam Kr Das, Sumangal Bhaumik, Titas Bhaumik, "Machine Learning Based ECG Signal Classification," Journal For Basic Sciences, Volume 24, Issue 1, pp. 367-2377, 22.01.2024, ISSN No.: 1006-8341. (Scopus indexed journal)
- **Shyamal Kumar Roy, Aveek Chattopadhyaya, Suman Ghosh, Amit Debnath**, "Design of Three Phase Inverter Fed AC Drive," Technische Sicherheit (Technical Security), Volume 24, Issue 03, pp. 201-211, 20/03/2024, ISSN No.: 1434-9728. (Scopus indexed journal)
- **Arpan Das**, "Development of a Photovoltaic-Powered Electrolyzer for Sustainable Green Hydrogen Production," Technical Security Journal, Volume 24, Issue 4, April 2024, ISSN No.: 2191-0073.
- **Mainak Das, Vishal Roy, Arpan Kumar, Akash Das**, "Cost Effective Solar Powered Wireless Mobile Charger," Journal of Basic Science, Volume 24, Issue 5, June 2024, ISSN No.: 1006-8341.
- **Arpan Das**, "A Review of Fault Diagnosis in AC Micro-Grids by Machine Learning," YMER (Publisher: University of Stockholm), Volume 23, Issue 6, June 2024, pp. 1215-1230, UGC Care-II, ISSN No.: 0044-0477. (Scopus indexed journal)
- **Barnali Kundu, Debasree Saha, Suman Ghosh, Arpan Das**, "Development of a Photovoltaic-Powered Electrolyzer for Sustainable Green Hydrogen Production," Technical Security Journal, Volume 24, Issue 4, April 2024, ISSN No.: 2191-0073.
- Tista Banerjee, Sumangal Bhaumik, **Aveek Chattopadhyaya**, Titas Bhaumik, Shubham Kar, Surajit Paul, "Parameter Estimation of Three Phase Induction Motor using Gravitational Search Algorithm for DTC," Journal For Basic Sciences, Volume 24, Issue 06, pp. 566-576, 27.06.2024, ISSN No.: 1006-8341.
- Soumya Kanti Bandyopadhyay, Sumangal Bhaumik, **Aveek Chattopadhyaya**, Titas Bhaumik, **Shyamal Kumar Roy, Amit Debnath, Suman Ghosh**, Tista Banerjee, "Negative Sequence Component and Root Mean Square Based Single Phasing Detection of Induction Motor," Journal For Basic Sciences, Volume 24, Issue 06, pp. 594-603, 29.06.2024, ISSN No.: 1006-8341.

Conference

- **Rikta Majumder, Susovan Dutta, Aritra Chowdhury, Aritra Kundu**, "Solar based Automatic EV Charging System," International Conference on Science, Technology & Communication Skills (TCSCON-2024), Narula Institute of Technology, Kolkata, 22-24 February, 2024.
- **Arpan Das, Ankur Vaibhav, Nivedita Saha,** "Design and Development of an IoT Governed Smart Battery Management System," 14th Academic Meet, Forum of Scientists, Engineers & Technologists (FOSET), JIS College of Engineering (JISCE), West Bengal, 12th May, 2024.
- **Arpan Das, Eshita Das, Payel Chakraborty, Aritra Chowdhury**, "A Data-Driven Approach for Accurate Solar Power Forecasting," SERB Sponsored National Conference on Machine Learning in Healthcare Applications (MLHA-2024), GNIT, Kolkata, April, 2024.
- **Ramanuj Bhowmick, Soumyajit Pradhan, Ratnadwip Dhali,** "Smart Energy Meter Utilizing Internet of Things (IoT) Technology," SERB Sponsored National Conference on Machine Learning in Healthcare Applications (MLHA-2024), GNIT, Kolkata, April, 2024.
- Debarghya Roy, Akash Bhowmick, Arghyadeep Ghosh, Kumari Guria Rani, "Third Eye for Blind Person," IEI Conclave of Student's Chapter 2024, JIS College of Engineering, 05.04.2024. (Selected as Session Best Paper)
- **Chandrima Ghosh, Soumyajit Dasgupta, Souptik Chakraborty,** "Smart Weight Monitoring System," SERB Sponsored National Conference on Machine Learning in Healthcare Applications (MLHA-2024), GNIT, Kolkata, pp. 114-121, 19.04.2024.
- **Sahil Mondal, Tushar Ghosh, Prasun Das**, "Three Phase Transmission Line Fault Detection System," Third Regional Conclave of Students' Chapter (Eastern Region), IEI, JISCE, 5th April, 2024.

Patent Granted

- **Dr. Barnali Kundu, Dr. Aveek Chattopadhyaya, Mr. Susovon Dutta, Mr. Subharshi Roy, Mr. Debanjan Chatterjee**, "Cloud Based Real-Time Vibration and Temperature Monitoring System for Wind Turbine," Patent No.: 542772, Application No: 202131054354, Date of Filing: 24/11/2021, Patentee: Guru Nanak Institute of Technology, Patent Grant Date: 25/06/2024. (Granted)

Research Patents — Faculty: Amit Debnath

- "IoT Based Low Cost Smart Incubator System," Application No: 202431046358, Date of Filing of Application: 15/06/24, Publication Date: 21/06/24.

DEPARTMENTAL PATENT DOCUMENTS



पेटेंट कार्यालय भारत सरकार The Patent Office, Government Of India

पेटेंट प्रमाण पत्र | Patent Certificate

पेटेंट सं. / Patent No. : 542772

आवेदन सं. / Application No. : 202131054354

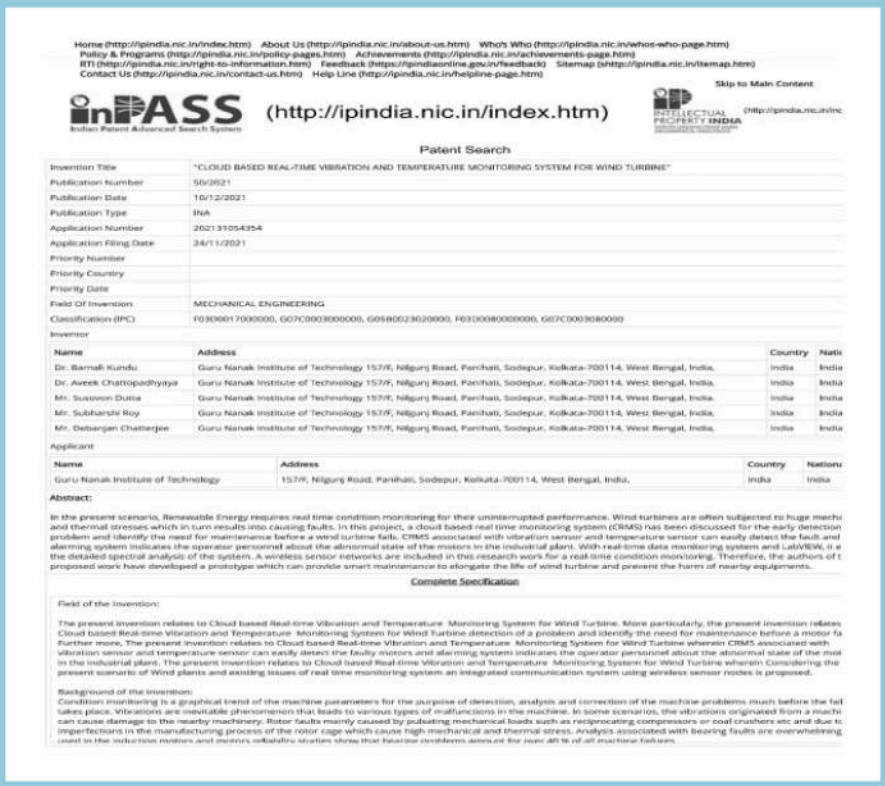
फाइल करने की तारीख / Date of Filing : 24/11/2021

पेटेंटी / Patentee : Guru Nanak Institute of Technology

It is hereby certified that a patent has been granted to the patentee for an invention entitled "CLOUD BASED REAL-TIME VIBRATION AND TEMPERATURE MONITORING SYSTEM FOR WIND TURBINE" as disclosed in the above mentioned application for the term of 20 years from the 24th day of November 2021 in accordance with the provisions of the Patents Act,1970.

Date of Grant : 25/06/2024

By Order,
Controller of Patents



Home (http://ipindia.nic.in/index.htm) About Us (http://ipindia.nic.in/about-us.htm) Who's Who (http://ipindia.nic.in/whos-who-page.htm)
Policy & Programs (http://ipindia.nic.in/policy-pages.htm) Achievements (http://ipindia.nic.in/achievements-page.htm)
RTI (http://ipindia.nic.in/right-to-information.htm) Feedback (https://ipindiaonline.gov.in/feedback) Sitemap (sHttp://ipindia.nic.in/itemap.htm)
Contact Us (http://ipindia.nic.in/contact-us.htm) Help Line (http://ipindia.nic.in/helpline-page.htm)

Skip to Main Content

inPASS Indian Patent Advanced Search System (http://ipindia.nic.in/index.htm)

Patent Search

Invention Title	"CLOUD BASED REAL-TIME VIBRATION AND TEMPERATURE MONITORING SYSTEM FOR WIND TURBINE"
Publication Number	50/2021
Publication Date	10/12/2021
Publication Type	INA
Application Number	202131054354
Application Filing Date	24/11/2021
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	MECHANICAL ENGINEERING
Classification (IPC)	F03D801700000, G07C0003000000, G05B0023020000, F03D0080000000, G07C0003080000

Inventor

Name	Address	Country	Nati
Dr. Barnali Kundu	Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114, West Bengal, India.	India	India
Dr. Avesk Chattopadhyaya	Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114, West Bengal, India.	India	India
Mr. Susovon Dutta	Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114, West Bengal, India.	India	India
Mr. Subharshi Roy	Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114, West Bengal, India.	India	India
Mr. Debanjan Chatterjee	Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114, West Bengal, India.	India	India

Applicant

Name	Address	Country	Nationu
Guru Nanak Institute of Technology	157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114, West Bengal, India.	India	India

Abstract:

In the present scenario, Renewable Energy requires real time condition monitoring for their uninterrupted performance. Wind turbines are often subjected to huge mechu and thermal stresses which in turn results into causing faults. In this project, a cloud based real time monitoring system (CRMS) has been discussed for the early detection problem and identify the need for maintenance before a wind turbine fails. CRMS associated with vibration sensor and temperature sensor can easily detect the fault and alarming system indicates the operator personnel about the abnormal state of the motors in the industrial plant. With real-time data monitoring system and LabVIEW, it a the detailed spectral analysis of the system. A wireless sensor networks are included in this research work for a real-time condition monitoring. Therefore, the authors of t proposed work have developed a prototype which can provide smart maintenance to elongate the life of wind turbine and prevent the harm of nearby equipments.

Complete Specification

Field of the Invention:

The present invention relates to Cloud based Real-time Vibration and Temperature Monitoring System for Wind Turbine. More particularly, the present invention relates Cloud based Real-time Vibration and Temperature Monitoring System for Wind Turbine detection of a problem and identify the need for maintenance before a motor fa Further more, The present invention relates to Cloud based Real-time Vibration and Temperature Monitoring System for Wind Turbine wherein CRMS associated with vibration sensor and temperature sensor can easily detect the faulty motors and alarming system indicates the operator personnel about the abnormal state of the mot in the industrial plant. The present invention relates to Cloud based Real-time Vibration and Temperature Monitoring System for Wind Turbine wherein Considering the present scenario of Wind plants and existing issues of real time monitoring system an integrated communication system using wireless sensor nodes is proposed.

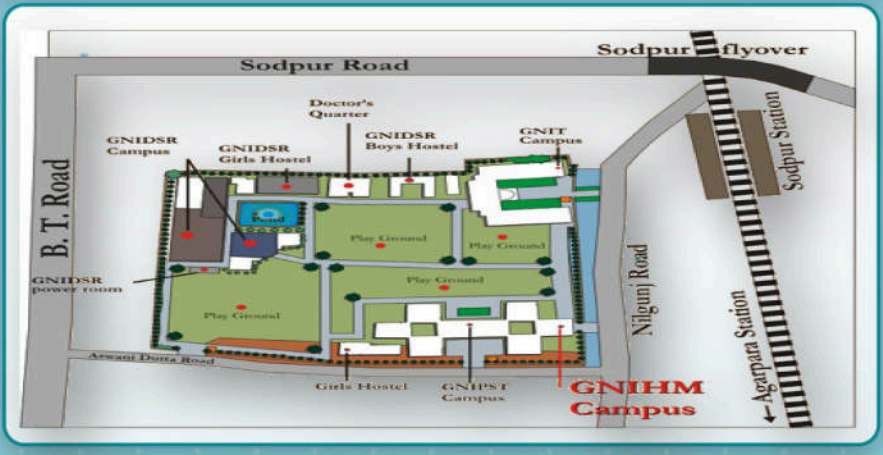
Background of the Invention:

Condition monitoring is a graphical trend of the machine parameters for the purpose of detection, analysis and correction of the machine problems much before the fai takes place. Vibrations are inevitable phenomenon that leads to various types of malfunctions in the machine. In some scenarios, the vibrations originated from a machi can cause damage to the nearby machinery. Rotor faults mainly caused by pulsating mechanical loads such as reciprocating compressors or coal crushers etc and due to imperfections in the manufacturing process of the rotor cage which cause high mechanical and thermal stress. Analysis associated with bearing faults are overwhelming used in the induction motors and motors reliability studies show that bearing problems account for over 40 % of all machine failures.

DEPARTMENT OF ELECTRICAL ENGINEERING

GURU NANAK INSTITUTE OF TECHNOLOGY

GNIT / EE / ELECTRO IMPRESSION / JANUARY – JUNE 2024



157/F Nilgunj Road, Panihati, Kolkata 700114
Phone: +91 33 2563 3900
Fax: + 91 33 2563 7957
www.gnit.ac.in