KALASALINGAM
ACADEMY OF RESEARCH AND EDUCATION
(DEEMED TO BE UNIVERSITY)
Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A" Grade

Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:27-06-2021

Department	CIVIL ENGINEERING	Application No.	202110093
Area of Research	ENVIRONMENTAL ENGINEERING	Research Mode	FULL TIME

Name :

Date of Birth / Age :01-01-1970 / 51 Years

Gender :

Category :

e-Mail ID :nittinjohnson@gmail.com

Mobile :

Father's/Husband's Name		**Father's/Husband's Occupation**	
Family Income		**Residental Type**	
Birth Place		**Mother Tongue**	
Religion		**Martial Status**	
Aadhaar No.		**PAN No.**	
Physically Challenged		**Type of Disability**	

Address for Communication:	**Permenant Address:**
DISTRICT Pin-	DISTRICT Pin-

Qualification

Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode

Experience

Organization	Designation	Experience From	Experience TO	Work Nature

Payment Details

Transaction ID	Reference	Date of transaction	Amount	Status
202110093_210710122921	VPNB0103690518	10-07-2021	600	SUCCESS

Sustainable Solid Waste Management using Artificial Intelligence Models

Research Proposal

Nittin Johnson J

Introduction

- The waste management process typically involve numerous technical, climate , environmental, demographic, socio-economic, and legislative Parameters.
- Proper Management of municipal solid waste management is one of the prime concern for metropolitan cities.
- Such complex nonlinear process are challenging to model, predict and optimize using conventional methods.
- Recently, Artificial Intelligence (AI) techniques have gained momentum in offering alternative computational approaches to solve solid waste management problems.

Literature Review

Title	Author	Journal	Findings
Artificial Intelligence Applications in Solid Waste Management: Systematic Research Review	Mohamed abdalla et al., 2020	Waste Management	➢Review about the Analyzing Application of AI various SWM field including forecasting of waste characteristics, waste bin level detection, Process Parameters Prediction, Vehicle routing and SWM Planning. ➢Comprehensive Analysis about the different AI Models and Techniques Applied in SWM.
Land fill area estimation based on ANN Model and final waste disposal options	Hoque et al., 2020	Journal of Clear Production	➢ The innovative proposed method to landfill area estimation by ANN.

Literature Review...

Title	Author	Journal	Findings
Comparative study of predicting hospital solid waste generation using multiple linear regression and artificial intelligence	Golbaz et al., 2019	Journal of Environmental Health Science and Engineering SpringerNature	➢The performance of Neuron- and Kernel-based machine learning methods indicated that both models were satisfactory in predicting HSW.
Solid waste Management: Scope and challenge of Sustainability	Das et al., 2019	Journal of Clear Production	➢Innovative solutions that have been reported for the achievement of smart and sustainable waste management plans.

Problem Motivation

- unscientific treatment , improper collection, and ethical problems are leads to hazards like environmental degradation, water pollution, soil pollution and air pollution.
- Insufficient planning and inadequate operation are major reasons behind poor waste management.
- Waste management industry towards sustainability and profitability by means of advanced technologies and intelligence systems.
- AI has been efficient at tackling ill-defined Problems, learning from experience and handling uncertainty and incomplete data

Objectives

- To compare different models of artificial intelligence and to examine and evaluate their capacity in Municipal Solid Waste Management.
- To forecasting the quantity of municipal solid waste generation.
- To design and operate an smart waste collection system.
- To design the effective vehicle routing using Geographical Information System.
- To design automating the process of garbage sorting and disposal.
- To switching AI for smart recycling and waste management.

CONCLUSION

- A fundamental step in designing of an effective garbage management system is to predict the amount of waste that a city will generate.
- Determination of the volume of waste beforehand will result in proper planning of land fill sites, recycling units, development as operation of garbage collection infrastructure.
- Artificial intelligence based techniques will be successful for forecasting the volume of the waste and for the smart management of municipal solid waste.

ACTION PLAN

- Reconnaissance and Survey
- Site selection
- Data collection- Solid Waste Generation in Municipality and current management practices.
- Site visit for understand about the current municipal solid waste management practices.
- Analyzing the conventional methods of solid waste management and find the drawbacks of system.
- Introduce the Artificial intelligence methods to find the better accuracy in quantifying the solid waste generated.

ACTION PLAN...

- Identify the suitable models after comparing different models of artificial intelligence.
- Forecasting the quantity of solid waste generated using Al models
- Designing the smart waste dustbin for effective collection system and vehicle routing using GIS.
- Implementation of automated sorting system and disposal.
- Introduce smart recycling system with Artificial intelligence technology.

REFERENCE

- Gulnur Coskuner, Majeed S Jassim , Metin Zontul and Seda Karateke (2020) **Application of artificial intelligence neural network modeling to predict the generation of domestic, commercial and construction wastes.** *Waste Management & Research* 1–9
- Abbasi, M, Rastgoo, MN, Nakisa, B (2019) **Monthly and seasonal modeling of municipal waste generation using radial basis function neural network**. Environmental Progress & Sustainable Energy 38: 1–10.
- Abbasi M, El Hanandeh A (2016) **Forecasting municipal solid waste generation using artificial intelligence modelling approaches**. Waste Management 56:13–22
- Umang Soni, Akashdeep Roy, Ayush verma, Vipul Jain (2019) **Forecasting municipal solid waste generation using artificial intelligence models—a case study in India.** Springer Nature Applied Science 1:162
- Alexey Medvedev1, Petr Fedchenkov, Arkady Zaslavsky, Theodoros Anagnostopoulos, and Sergey Khoruzhnikov1 (2015) **Waste Management as an IoT-Enabled Service in Smart Cities.**
- Insung Hong, Sunghoi Park, Beomseok Lee, Jaekeun Lee, Daebeom Jeong, and Sehyun Park (2014) **IoT-Based Smart Garbage System for Efficient Food Waste Management.**
- Abdoli MA, Nezhad MF, Sede RS, et al. (2012) **Longterm forecasting of solid waste generation by the artificial neural networks.** *Environmental Progress and Sustainable Energy* 31: 628–636

THANK YOU

Serial No. : C24/13/02751 Register No. : CE1122

Pondicherry University

The Vice-Chancellor and the Executive Council of the Pondicherry University, on the recommendations of the duly appointed Board of Examiners, hereby declare that

NITTIN JOHNSON, J.

has been admitted to the Degree of

MASTER OF TECHNOLOGY

in Branch : ENVIRONMENTAL ENGINEERING

and placed in FIRST CLASS at the Examination held in MAY 2013. He / She was a bonafide student of

PONDICHERRY ENGINEERING COLLEGE.

Given under the Seal of the University

Registrar

Puducherry
Date 29 JAN 2016

Vice-Chancellor

PONDICHERRY ENGINEERING COLLEGE

(AUTONOMOUS STATUS FOR ALL POST GRADUATE PROGRAMMES)
PILLAICHAVADY, PUDUCHERRY - 605 014.

5500

AFFILIATED TO PONDICHERRY UNIVERSITY

CONSOLIDATED GRADE SHEET

Name : NITTIN JOHNSON J
Reg.No. : CE1122
Course : M.TECH (ENVIRONMENTAL ENGINEERING)
Year of Passing : MAY 2013
Class Awarded : FIRST CLASS

Sub.Code	Subject Name	Core/ Elec.	Credits	Grade	Month & Year of Completion
FIRST SEMESTER					
CE911	MATHEMATICS FOR ENVIRONMENTAL ENGINEERS	C	4	D	DEC 2011
CE912	ENVIRONMENTAL CHEMISTRY	C	4	D	DEC 2011
CE913	ENVIRONMENTAL MICROBIOLOGY	C	4	D	DEC 2011
CE914	PRINCIPLES AND DESIGN OF PHYSICO-CHEMICAL TREATMENT SYSTEMS	C	4	D	DEC 2011
CE917	LABORATORY AND FIELD TESTING	C	2	C	DEC 2011
CE942	AIR POLLUTION CONTROL ENGINEERING	E	3	D	DEC 2011
CE953	SOLID AND HAZARDOUS WASTE MANAGEMENT	E	3	D	DEC 2011
SECOND SEMESTER					
CE915	PRINCIPLES AND DESIGN OF BIOLOGICAL TREATMENT SYSTEMS	C	4	D	MAY2012
CE916	TRANSPORT OF WATER AND WASTEWATER	C	4	D	MAY2012
CE918	SEMINAR	C	2	B	MAY2012
CE941	AIR & WATER QUALITY MODELLING	E	3	D	MAY2012
CE946	ENVIRONMENTAL GEOTECHNOLOGY	E	3	D	MAY2012
CE947	ENVIRONMENTAL IMPACT ASSESSMENT	E	3	B	MAY2012
CE950	INSTRUMENTAL MONITORING OF ENVIRONMENT	E	3	D	MAY2012
THIRD SEMESTER					
CE919	DISSERTATION PROJECT (PHASE-I)	C	9	B	DEC 2012
CE971	DIRECTED STUDY	C	3	B	DEC 2012
FOURTH SEMESTER					
CE920	DISSERTATION PROJECT (PHASE - II)	C	14	A	MAY 2013

MINIMUM CREDITS FOR THIS COURSE : 72 TOTAL CREDITS EARNED : 72 CGPA : 7.08

CHAIRMAN
POST GRADUATE PROGRAMME

OFFICE OF THE CHAIRMAN
PONDICHERRY
10 SEP 2013
ENGINEERING COLLEGE
POST GRADUATE PROGRAMMES

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PONDICHERRY ENGINEERING COLLEGE

PONDICHERRY ENGINEERING COLLEGE

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(Affiliated to Pondicherry University)
PILLAICHAVADY, PUDUCHERRY 605 014.

TRANSFER AND CONDUCT CERTIFICATE

Sl.No. 2150 Adm.No. 1122/11

1.	Name of the Student	:	NITTIN JOHNSON J
2.	Name of the Father/Husband	:	JEYARAJ M
3.	Date of Birth as entered in the College records	:	05/06/1990 (FIFTH JUNE NINETEEN NINTY)
4.	Nationality	:	INDIAN
5.	Date of Admission	:	15/09/2011
6.	Course / Branch of Study	:	M.TECH (EE)
7.	Whether qualified for promotion to Higher Class	:	REFER MARK SHEET
8.	Date on which the student left the College	:	19/04/2013
9.	Reason for leaving the College	:	COURSE COMPLETED
10.	Whether the student has paid all the dues to the College	:	YES
11.	Conduct and Character	:	Good

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Date: 22/04/2013

College Seal: PONDICHERRY ENGINEERING COLLEGE PUDUCHERRY

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Approved by AICTE No. 06/06/KER/ENGG/2009-10/007 dtd. 08/06/09 & Affiliated to Kerala Technological University No. KTU/A/593/2015 dtd. 15/05/2015

UKF/SM/NOC/29-O/05

15th May 2021

NO OBJECTION CERTIFICATE

This is to certify that Mr. Nittin Johnson J is working in our institution as Assistant Professor in the Department of Civil Engineering since 1 st February 2019. We have no objection in admitting him for the Ph.D Programme in Chemical Engineering (Part-time) in the National Institute of Technology Calicut on the condition that the day to day work in the college should not be affected in any manner.

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Self attested

J. nittjohnson

இந்திய தேர்தல் ஆணையம்

வாக்காளர் அடையாள அட்டை

ELECTION COMMISSION OF INDIA
IDENTITY CARD

YXB0470393

வாக்காளர் பெயர் : நிட்டி[illegible]ான்சன்

Elector's Name : Nittin J[illegible]son

தந்தை பெயர் : ஜெயராஜ்

Father's Name : Jeyaraj

பாலினம் / Sex : ஆண் / Male

பிறந்த தேதி / Date of Birth: 05/06/1990

YXB0470393

முகவரி: 21-587B / NA
வினோபா காலனி
அயன்கரிசல்குளம்
ஸ்ரீவில்லிபுத்தூர் வட்டம்

Address : 21-587B / NA
Venopa colony
Ayankarisalkulam
Srivilliputtur Taluk

நாள் / Date: 01/07/2013
வாக்காளர் பதிவு அதிகாரியின்
கையொப்ப முத்திரை
203 - ஸ்ரீவில்லிபுத்தூர்
சட்டமன்ற தொகுதி
Facsimile Signature of
Electoral Registration Officer
203 - Srivilliputhur
Assembly Constituency

In case of change of address, mention this card no. in the relevant form for including your name in the roll at the changed address and to obtain the elector's card with same number.

90, 108

R.Dis. 7911 /2005 dt.

S/NO 2450/2005

GCP—26/6—7.29,175 Cps.-11-7-2001[p2-1]

BC

மாவட்ட குறியீடு எண் :
District Code :

1	3

சான்றிதழ் எண் :
Certificate No. :

வட்ட குறியீடு எண் :
Taluk Code :

0	2

4832713

கிராம குறியீடு எண் :
Village Code :

0	0	2

சாதிச் சான்றிதழ்
COMMUNITY CERTIFICATE

திண்டுக்கல் மாவட்டம் நிலக்கோட்டை வட்டம்
சேவுகம்பட்டி கிராமம்/நகரம், திரு / திருமதி / செல்வி/
செல்வன் J. நிட்சன் ஜான்சன் தகப்பனார்/கணவர்
பெயர் மரு. ஜெயராஜ்
கிறிஸ்துவர் பறையர்

எதனைப் பரிந்துரை, அரசு ஆணை நிலை எண். 28, பிற்பட்ட மற்றும் மிகவும் பிற்பட்ட பிரிவினர் நலத் துறை, நாள் 19.7.1994 வரிசை எண் 018 படி, பிற்பட்ட பிரிவினரை சார்ந்தவர் என சான்றளிக்கப்படுகிறது.

This is to certify that ..... Son / Daughter of Thiru ..... of ..... Village / Town, ... Taluk, ... District of the State of Tamil Nadu belongs to ..... Community, which is recognised as a Backward Class as per Government Order (Ms.) No. 28, Backward Classes and Most Backward Classes Welfare, dated 19th July 1994, *vide* Serial No. .....

2 திரு / திருமதி / செல்வன் / செல்வி J. நிட்சன் ஜான்சன் மற்றும் அவரது குடும்பத்தினர் நிரந்தரமாக திண்டுக்கல் மாவட்டம் நிலக்கோட்டை வட்டம் அண்ணாநகர் வசித்து கிராமத்தில் / நகரத்தில் வசித்து வருகிறார்கள் என சான்றளிக்கப்படுகிறது.

2. It is certified that Thiru/Tmt/Selvan/Selvi ..... and his/her family ordinarily reside(s) at ..... Village/ Town ..... Taluk ..... District of Tamil Nadu.

முத்திரை
Seal

கையொப்பம்
Signature :

நாள்
Date : 4-10-2005

பெயர் (தெளிவாக எழுதுக)
Name (in Capital) : மாவட்ட ஆட்சியர்
நிலக்கோட்டை

பதவி
Designation :

UKF COLLEGE
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UKF/SM/NOC/29-0/05

7th December 2020

NO OBJECTION CERTIFICATE

This is to certify that **Mr. Nittin Johnson J** is working in our institution as Assistant Professor in the Department of Civil Engineering since 1st February 2019. We have no objection in admitting him for the Ph.D Programme in Civil Engineering (Part-time) in the Kalasalingam University on the condition that the day to day work in the college should not be affected in any manner.

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