



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

**APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES**

Date of Application:08-06-2021

Department	ELECTRICAL AND ELECTRONICS ENGINEERING	Application No.	202110049
Area of Research	INNOVATIVE MOTORS AND POWER DRIVE	Research Mode	PART TIME

**Name** :KUMAR HARSH  
**Date of Birth / Age** :05-01-1995 / 26 Years  
**Gender** :MALE  
**Category** :OC  
**e-Mail ID** :kumarharsh034@gmail.com  
**Mobile** :9566863866



*Kumar Harsh*

<b>Father's/Husband's Name</b>	RAJENDRA JHA	<b>Father's/Husband's Occupation</b>	FARMER
<b>Family Income</b>	6 LAKH	<b>Residential Type</b>	RURAL
<b>Birth Place</b>	SAHARSA	<b>Mother Tongue</b>	HINDI
<b>Religion</b>	HINDU	<b>Martial Status</b>	SINGLE
<b>Aadhaar No.</b>	265036916359	<b>PAN No.</b>	AKIPH1966L
<b>Physically Challenged</b>	NO	<b>Type of Disability</b>	-

**Address for Communication:**  
 BLOCK NO 4, FLAT NO 78, DOOR NO 7  
 TNHB FLATS, KUPPAM, AMBATTUR  
 CHENNAI  
 THIRUVALLUR DISTRICT  
 TAMILNADU  
 INDIA  
 Pin-600053

**Permenant Address:**  
 WARD NO 9  
 VISHANPUR, KHARAGPUR  
 VISHANPUR  
 SAHARSA DISTRICT  
 BIHAR  
 INDIA  
 Pin-852106

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
M.TECH	EMBEDDED SYSTEMS AND TECHNOLOGIES	VEL TECH RANGARAJAN DR. SAGUNTHALA R&D INSTITUTE OF SCIENCE AND TECHNOLOGIES	2019	8.11	FIRST	REGULAR
B.TECH	ELECTRONICS AND COMMUNICATION ENGINEERING	VEL TECH RANGARAJAN DR. SAGUNTHALA R&D INSTITUTE OF SCIENCE AND TECHNOLOGIES	2016	7.84	FIRST	REGULAR
INTERMEDIATE / +2	PCM	MAHADEO SINGH COLLEGE, BHAGALPUR	2011	272	SECOND	REGULAR
MATRIC		SHARDA PATHSHALA, KAHALGAON	2009	384	FIRST	REGULAR

Experience				
Organization	Designation	Experience From	Experience TO	Work Nature
MILGRACIAS EBIKE INDIA PVT. LTD.	DIRECTOR	2019-03-16	2021-06-08	R&D, LEADERSHIP AND MANAGEMENT OF COMPANY'S BUSINESS
FRANCECOL TECHNOLOGY	ENGINEER	2016-06-06	2019-02-25	MOTOR IMPLEMENTATION AND POWER BOARD DESIGNING

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
202110049_210613184551	VHD40037503284	13-06-2021	600	SUCCESS

# **Design And Optimization of Homopolar Transverse Flux Innovative Electrical Machine**

**Name:** Kumar Harsh

**Supervisor Name:** 1. Dr. Seshadhri Srinivasan

Kalasalingam Academy of Research and Education

2. Prof. Dr. François Bernot

FranceCol Technology, France

This Research Program is the Part of Collaboration between Milgracias E-Bike India Pvt. Ltd. And ACIC-KIF. AS Milgracias is the part of Incubator. Research will be undertaken by Dr. Seshadhri Srinivasan as Internal Supervisor. Where the design and optimization of electrical machines will take place under his supervision to enhance the efficiency and performance of electrical machines.

**Abstract:** The Proposal describes the design and optimization of transverse flux innovative homopolar electrical machine. The Project proposes different rotor construction according to the various possible alternatives of applications of the proposal in a rotating electrical machine:

- a. BLDC synchronous magnet motor.
- b. BLDC synchronous magnet less motor.
- c. Squirrel Cage Induction motor.

## **Introduction:**

The Circular shaped stator winding is surrounded by U-shaped stator teeth. A single-phase, two-phase, three-phase or polyphase machine, obtained by axially stacking elementary machines properly phase-shifted relatively to each other by an electric angle substantially equal to one electric turn ( $360^\circ$  divided by the number of pairs of poles) divided by the number of phases, said angular phase shift created at the Stator. The novel motor design will provide simple magnetisation of the rotor. Only one magnet is required for single phase in BLDC synchronous magnet motor. Ring-shaped coil is easily manufactured. Due to large current density and force density high torque can be expected. Stator coil and rotor coil are concentric. Better Cooling possibilities the existing electrical machines. Transverse flux machine produces high power and high torque, which have less constraints of structure on electric load and magnetic load This has made Transverse Flux machine desirable for direct drive applications where a high torque is required at a low rotational speed, such as traction applications, wind turbines, and wave energy converters.



# Vel Tech

Rangarajan Dr. Sagunthala  
R&D Institute of Science and Technology  
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)



Sl. No. : 6486

Reg. No. : 17PEES0006

The Board of Management of this Deemed University

hereby makes known that

**KUMAR HARSH  
S/O PRABHA DEVI**

has been admitted to the Degree of  
**MASTER OF TECHNOLOGY IN  
EMBEDDED SYSTEMS AND TECHNOLOGIES**

have been certified by duly appointed examiners  
to be qualified to receive the same and placed in  
**FIRST CLASS WITH DISTINCTION ( CGPA 8.11 )**

at the examination held in  
**MAY 2019**

Given under the seal of this Deemed University

Dated : 13-Aug-2019



Registrar

Vice Chancellor

President

S.No.  
C 0000040



# Vel Tech

Rangarajan Dr. Sagunthala  
R&D Institute of Science and Technology  
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No.42, Avadi-Vel Tech Road, Avadi, Chennai-600 062, Tamil Nadu, India



## CONSOLIDATED STATEMENT OF GRADES

**DEGREE** M.Tech **PROGRAMME** EMBEDDED SYSTEMS AND TECHNOLOGIES

Name of the Student	KUMAR HARSH	Reg. No.	17PEES0006
Date of Birth	05-Jan-1995	Month & Year of Enrolment	Aug.2017
Gender	Male	Month & Year of Last Examination	May.2019
Duration in Years	Two	Total Credits Required	80
Medium of Instruction	English	Regulations	MTECHR16

Course Code	Name of the Course	Credits	Grade Points	Month & Year of Passing
<b>Foundation</b>				
2160MA101	Applied Mathematics and Statistics	4	7	Dec.2017
<b>Programme Core</b>				
2161EC101	Semiconductor Physics and Failure Analysis	4	8	Dec.2017
2161EC102	DSP Processor and Architecture	4	7	Dec.2017
2161EC201	System Design	4	8	Dec.2017
2161EC107	Advanced Digital System Design	4	7	Apr.2018
2161EC108	Embedded Control System Design	4	8	Apr.2018
2161EC205	Embedded OS and Device Drivers	4	7	Apr.2018
2161EC303	Realtime System with FPGA Laboratory	1	10	Apr.2018
2161EC304	Embedded and RTOS Laboratory	1	10	Apr.2018
2161EC109	Software Technology for Embedded Systems	4	7	Nov.2018
<b>Programme Elective</b>				
2162EC108	Sensors and Actuators	3	8	Apr.2018
2162EC101	Embedded Networking Protocol	3	7	Nov.2018
2162EC105	Hardware Software Co-Design	3	7	Nov.2018
2162EC117	Principles of Multimedia and Multimedia Architectures	3	7	Nov.2018
<b>Independent Learning</b>				
2163MG401	Research Methodology	2	8	Dec.2017
2163GE401	Business Communication	2	7	Apr.2018
2163EC407	Development of Embedded Systems and RTOS	2	6	Nov.2018
2163EC502	Research Seminar	2	10	Nov.2018
<b>Project Work</b>				
2164EC601	Project Work Phase - I	10	10	Nov.2018
2164EC701	Project Work Phase - II	16	9	May.2019



Cumulative Credits Earned	80	Cumulative Grade Point Average (CGPA)	8.11	Class Obtained	First Class with Distinction
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Date of Issue : 01-Aug-2019

This Grade Card bears no correction

CONTROLLER OF EXAMINATIONS



**Vel Tech**  
Rangarajan Dr. Sagunthala  
R&D Institute of Science and Technology  
(Deemed to be University Estd. u/s 3 of UGC Act, 1956)



**TRANSFER CERTIFICATE**

ID No.	VTP2082	Register Number	17PEES0006	TC No.	11962
1.	Name of the Student	KUMAR HARSH			
2.	Name of the Father	RAJENDRA JHA			
3.	Name of the Mother	PRABHA DEVI			
4.	Gender	Male			
5.	Date of Birth (as entered in the Institution records)	05-Jan-1995			
6.	Nationality	Indian			
7.	Religion & Community	Hindu OC			
8.	Date of Admission	26-Aug-2017			
9.	Degree & Programme to which the student was admitted	M.Tech - EMBEDDED SYSTEMS AND TECHNOLOGIES			
10.	Duration of the Programme	Two Years			
11.	Semester studied at the time of leaving	Fourth Semester			
12.	Whether he / she completed the prescribed duration of the programme	Yes			
13.	Whether qualified for higher studies	Refer to Grade Cards/Mark Sheets			
14.	Date of leaving	30-Jul-2019			
15.	Conduct & Character	Good			
16.	Medium of Instruction	English			

Certified that the above personal particulars are as provided by the student and available in the records of the Institution. For details about the academic performance of the student, Grade Cards / Mark Sheets may be referred. This Institution has no objection to this student joining any other recognized College / Institute / University or taking examination of any other University or Board established by law.

No.42, Avadi-Vel Tech Road, Avadi, Chennai, Tamil Nadu, Pincod-600 062, India



Mrs. *Prema*  
REGISTRAR

**Vel Tech**  
R&D Institute of Science and Technology  
(Deemed to be University)

आयकर विभाग  
INCOME TAX DEPARTMENT



भारत सरकार  
GOVT. OF INDIA

KUMAR HARSH

RAJENDRA JHA

05/01/1995

Permanent Account Number

AKIPH1966L



02072013

*Kr. Harsh*

Scanned by  
Signature  
CamScanner

# INDIAN DRIVING LICENCE

GOVERNMENT OF BIHAR

FORM-7

DL: BR-1920180037607

Name : KUMAR HARSH

SW/D of : RAJENDRR JHA

Address : AT-VISHANPUR, WDNO-09  
KHARAGPUR, SAHARSA



Valid Till (Transport)

DOB : 05/01/1995 BG : O+

Valid Till (Non-Transport)

06/02/2038

Badge No :

\*Authorisation to drive the following vehicle  
class throughout India.

Type of Vehicles : LMV-NT MCWG only

Signature of Holder

*Kr Harsh*

Sign. of Licencing Authority

DTO - SAHARSHA

Issued on : 09/02/2018

DL: BR-1920180037607

Original LA : DTO,SAHARSA

Old DL No :

Date Of Issue : 09/02/2018

**Class Of Vehicles**

Vehicle Class	Issue Date
LMV-NT	09/02/2018
MCWG	09/02/2018

BR10DL01855991

