



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

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:06-12-2020

Department	ELECTRONICS AND COMMUNICATION ENGINEERING	Application No.	202020054
Area of Research	IMAGE PROCESSING	Research Mode	FULL TIME

Name :KANAGAVEL M
Date of Birth / Age :23-12-1990 / 30 Years
Gender :MALE
Category :BC
e-Mail ID :kanagavelpillai@gmail.com
Mobile :9489932744



(Handwritten signature)

Father's/Husband's Name	MURUGAN P	Father's/Husband's Occupation	COOLIE WORKER
Family Income	100000	Residential Type	RURAL
Birth Place	VIRUDHUNAGAR	Mother Tongue	TAMIL
Religion	HINDU	Martial Status	SINGLE
Aadhaar No.	259422231680	PAN No.	CCOPK5017M
Physically Challenged	NO	Type of Disability	-
Address for Communication: 2/697-2 V.O.C. NAGAR SOOLAKKARAI MEDU VIRUDHUNAGAR DISTRICT TAMIL NADU INDIA Pin-626003		Permenant Address: 2/697-2 V.O.C. NAGAR SOOLAKKARAI MEDU VIRUDHUNAGAR DISTRICT TAMIL NADU INDIA Pin-626003	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
BE	ECE	ANNA UNIVERSITY	2013	7.2	FIRST	REGULAR
ME	COMMUNICATION SYSTEMS	ANNA UNIVERSITY	2015	7.87	FIRST	REGULAR

Experience				
Organization	Designation	Experience From	Experience TO	Work Nature

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
202020054_201231172259	VSM29613029254	31-12-2020	600	SUCCESS

KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION

(Deemed to be University)

Anand Nagar, Krishnankoil – 626126, Tamil Nadu, India

**Research Proposal for Admission to Ph.D. Programme
January 2021 Session**

Name of the Candidate: **KANAGAVEL M**

Area of Research: **Image Processing**

Tentative Title: **Enhancement and Analysis of Underwater Images**

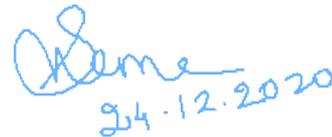
Abstract

In air medium the scattering of visible light is stronger than absorption when compared to water medium where in absorption is stronger than scattering. Even though the air medium may contain fog, smoke, dust, water vapour etc as impurities during normal day time, the absorption of visible light is always less and hence the captured image contains three colour channels in RGB. On the other hand due to the presence of dissolved salts and minerals, sand particles, degraded plant and animal materials, micro organisms such as pathogens in water and decrease in intensity of visible light when depth increases, the absorption will become very stronger which leads to disappearance of colours of visible light in water and hence the captured image is usually blue or green with the low intensity or absence of Red Channel in the RGB environment and also the captured image is worst in the case of marine environment. In this work we will propose a new method to map the colour channels of the captured images of objects in different environment with the captured images of the same objects in the marine environment for enhancement of underwater images.



Signature of the Candidate

Dated: The 24th December, 2020



Signature of the Supervisor

Dr. S. BAMA

Associate Professor

Department of ECE

Kalasalingam Academy of

Research and Education

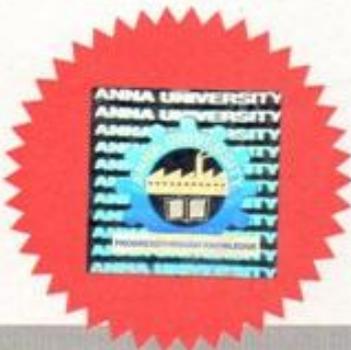
Anna University



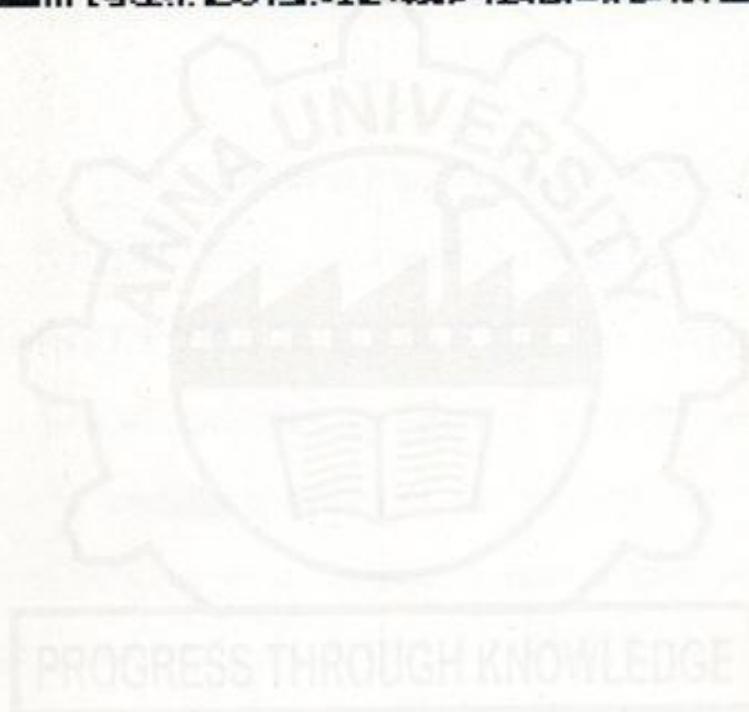
Reg.No. 97008106019/RG

The Syndicate of the Anna University hereby makes known that
KANAGAVEL M *has been admitted to the* **DEGREE OF BACHELOR OF ENGINEERING** *in* **ELECTRONICS AND COMMUNICATION ENGINEERING** *under the Faculty of Information and Communication Engineering, having completed the prescribed programme of study and having been certified by the duly appointed examiners to be qualified to receive the same, and has been placed in* **FIRST CLASS** *at the Examination held in* **APRIL 2013.**

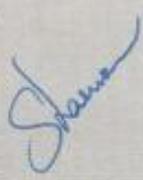
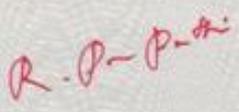
Given under the Seal of the University



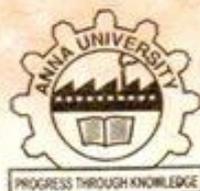
Note: As per the Act No.20 of 2011 - Tamil Nadu University Laws (Amendment and Repeal Act), the Anna University of Technology, Chennai, the Anna University of Technology, Coimbatore, the Anna University of Technology, Madurai, the Anna University of Technology, Tiruchirappalli and the Anna University of Technology, Tirunelveli are merged with Anna University, Chennai.



Sl. No. **272182**

Read by	
Verified by	

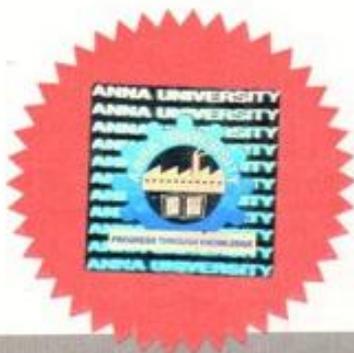
Anna University



Reg.No. 1352005/RG

The Syndicate of the Anna University hereby makes known that **KANAGAVEL M** has been admitted to the **DEGREE OF MASTER OF ENGINEERING** in **COMMUNICATION SYSTEMS** under the Faculty of Information and Communication Engineering, having completed the prescribed programme of study through **NATIONAL ENGINEERING COLLEGE, KOVILPATTI** an autonomous college affiliated to this University and having been certified by the duly appointed examiners to be qualified to receive the same, and has been placed in **FIRST CLASS** at the Examination held in **APRIL 2015**.

Given under the Seal of the University





Sl. No. 702696

Read by	S. Sathya
Verified by	K.P. Sathya



ANNA UNIVERSITY, CHENNAI - 600 025

B.E. DEGREE EXAMINATIONS CONSOLIDATED STATEMENT OF GRADES

Folio No. TMLC116946

K123529081078M



NAME OF THE CANDIDATE		COLLEGE OF STUDY		REGISTER NO.		GENDER		MONTH & YEAR OF PASSING					
KANAGAVEL, M		SRI SONDAMBARI COLLEGE OF ENGINEERING		97008106019		MALE		DEC 2008					
PROGRAMME & BRANCH		B.E. Electronics and Communication Engineering		MONTH & YEAR OF LAST APPEARANCE		MEDIUM OF INSTRUCTION		MONTH & YEAR OF PASSING					
				April 2013		English		23-DEC-90					
SEM	COURSE CODE	COURSE TITLE	C	EG	GP	MONTH & YEAR OF PASSING	SEM	COURSE CODE	COURSE TITLE	C	EG	GP	MONTH & YEAR OF PASSING
01	CS16	Fundamentals of Computing and Computer Programming	3	A	9	DEC 2008	05	EC57	Communication System Lab	2	A	9	DEC 2010
01	CV14	Engineering Chemistry - I	4	B	8	DEC 2008	05	EC58	Microprocessors and Microcontrollers Lab	2	B	8	DEC 2010
01	HS11	Technical English - I	3	B	8	DEC 2008	05	HS110	English Language Laboratory Cumulative Skills - I	2	B	8	DEC 2010
01	MA12	Mathematics - I	4	A	9	DEC 2008	06	EC61	Measurements and Instrumentation	3	B	8	APR 2011
01	ME13	Engineering Graphics	5	B	8	DEC 2008	06	EC62	Computer Networks	3	C	7	APR 2011
01	PH13	Engineering Physics - I	3	B	8	DEC 2008	06	EC63	Antenna and Wave Propagation	4	C	7	APR 2011
01	CS17	Computer Practice Laboratory - I	3	S	10	DEC 2008	06	EC64	VLSI Design	3	E	5	NOV 2011
01	GE19	Engineering Practices Laboratory	3	A	9	DEC 2008	06	MGG4	Principles of Management	3	C	7	NOV 2011
01	PCP18	Physics & Chemistry Laboratory - I	3	S	10	DEC 2008	06	MA51	Numerical Methods	3	C	7	APR 2011
02	CV24	Engineering Chemistry-II	3	B	8	MAY 2009	06	EC66	Computer Networks Lab	2	S	10	APR 2011
02	EC25	Electronic Circuits and Electron Devices	4	C	7	MAY 2009	06	EC67	VLSI Design Lab	2	A	9	APR 2011
02	HS21	Technical English - II	3	B	8	MAY 2009	07	HS610	English Language Laboratory - Cumulative Skills - II	2	S	10	APR 2011
02	MA22	Mathematics - II	4	C	7	MAY 2009	07	EC71	Wireless Communication	3	E	5	APR 2012
02	ME26	Basic Civil & Mechanical Engineering	4	B	8	MAY 2009	07	EC72	Optical Communication and Networks	3	E	5	NOV 2011
02	PH23	Engineering Physics - II	4	C	7	MAY 2009	07	EC73	RF and Microwave Engineering	3	E	5	NOV 2011
02	EC29	Circuits and Devices Laboratory	2	B	8	MAY 2009	07	CS807	High Speed Networks	3	D	6	APR 2012
02	GE27	Computer Practice Laboratory-II	2	S	10	MAY 2009	07	EC708	Digital Image Processing	3	E	5	APR 2012
02	GS28	Physics & Chemistry Laboratory - II	2	A	9	MAY 2009	07	GE71	Total Quality Management	3	B	8	NOV 2011
02	HS210	English Language Skill Laboratory (Skill of Listening)	2	B	8	MAY 2009	07	EC76	Electronics System Design Lab	2	A	9	NOV 2011
03	EC32	Electrical Engineering	3	E	5	DEC 2009	07	EC77	Optical & Microwave Lab	2	A	9	NOV 2011
03	EC33	Data Structures and Object Oriented Programming In C++	3	D	6	DEC 2009	08	EC801	Embedded and Real Time Systems	3	A	9	APR 2012
03	EC34	Digital Electronics	4	E	5	DEC 2009	08	EC808	Wireless Networks	3	A	9	NOV 2012
03	EC35	Signals and systems	4	E	5	DEC 2009	08	EC81	Project Work	6	D	6	APR 2012
03	EC36	Electronic Circuits- I	4	C	7	DEC 2010							
03	MA31	Transforms and Partial Differential Equations	4	E	5	DEC 2009							
03	EC37	Digital Electronics Lab	4	E	5	DEC 2009							
03	EC38	Electronic Circuits - I Lab	2	S	10	DEC 2009							
03	EC39	Data structures and Object Oriented Programming Lab	2	S	10	DEC 2009							
03	HS310	Communication Skills and Technical Seminar- I	2	S	10	DEC 2009							
04	EC41	Electronic Circuits II	4	A	9	APR 2011							
04	EC42	Communication Theory	4	D	6	APR 2011							
04	EC43	Electromagnetic Fields	4	E	5	NOV 2011							
04	EC44	Linear Integrated Circuits	4	E	5	JUN 2010							
04	EC46	Control Systems	3	E	5	NOV 2011							
04	MA45	Probability and Random Processes	4	C	7	APR 2013							
04	EC47	Electronic circuits II and simulation lab	4	C	7	JUN 2010							
04	EC48	Linear Integrated Circuit Lab	2	S	10	JUN 2010							
04	EC49	Electrical Engineering and Control System Lab	2	S	10	JUN 2010							
04	HS410	Communication Skills and Technical Seminar-II	2	B	8	JUN 2010							
05	EC51	Digital Communication	3	A	9	APR 2012							
05	EC52	Digital Signal Processing	3	E	5	APR 2012							
05	EC53	Computer Architecture and Organization	4	C	7	DEC 2010							
05	EC54	Microprocessors and Microcontrollers	4	E	5	APR 2011							
05	EC55	Transmission Lines and Wave guides	4	E	5	APR 2011							
05	GE32	Environmental Science and Engineering	4	E	5	NOV 2011							
05	EC56	Digital Signal Processing Lab	2	C	7	DEC 2010							

*** End of Statement ***
Cumulative Grade Point Average : 7.20
Classification : FIRST CLASS



SEM	Semester	C	Grade	GP	Grade Point							
01	100	81	90	71	80	61	70	57	60	50	56	< 50
Letter Grade	S	A	B	C	D	E	U					
Grade Point	10	9	8	7	6	5	0					

Chemical - 600 025

Signature of the student

where C - is the credits assigned to the course
GP - is the grade corresponding to the grade obtained for each course
N - is number of all courses successfully cleared during all the semesters

Signature of the Controller of Examinations

Controller of Examinations

Sl. No.: CSGA 142947

Read by	N. Venkatesh
Verified by	



NATIONAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE & Affiliated to Anna University, Chennai)

K.R.NAGAR-KOVILOPATTI - 628 503

ME Degree Examinations



CONSOLIDATED GRADE SHEET

Sl. No. 000306

NAME OF THE CANDIDATE		KANAGAVEL.M			REGISTER NO.	1352005	
DATE OF BIRTH		23/12/1990	GENDER	Male	MONTH & YEAR OF LAST APPEARANCE	APR 2015	
MODE		REGULAR			REGULATIONS	2013	
DEGREE & BRANCH		ME COMMUNICATION SYSTEMS					
SEM. NO.	SUBJECT CODE	SUBJECT TITLE	CREDITS	LETTER GRADE	GRADE POINT	MONTH & YEAR OF PASSING	
1	CSC11	APPLIED MATHEMATICS FOR COMMUNICATION ENGINEERS	4	B	8	APR 14	
1	CSC12	ADVANCED DIGITAL SIGNAL PROCESSING	3	C	7	NOV 13	
1	CSC13	ADVANCED NETWORK SECURITY	3	B	8	NOV 13	
1	CSC14	MODERN DIGITAL COMMUNICATION TECHNIQUES	3	C	7	NOV 13	
1	CSC15	OPTICAL COMMUNICATION NETWORKS	3	B	8	NOV 13	
1	CSC16	HIGH PERFORMANCE COMPUTER NETWORKS	3	B	8	NOV 13	
1	CSC17	COMMUNICATION SYSTEM LABORATORY - I	2	A	9	NOV 13	
2	CSC21	ADVANCED WIRELESS COMMUNICATION	3	C	7	APR 14	
2	CSC22	WIRELESS NETWORKS	4	B	8	APR 14	
2	CSC23	MULTIMEDIA COMPRESSION TECHNIQUES	3	C	7	APR 14	
2	CSE2A	ADVANCED RADIATION SYSTEMS	3	C	7	APR 14	
2	CSE2G	DIGITAL COMMUNICATION RECEIVERS	3	B	8	APR 14	
2	CSE2Q	DIGITAL IMAGE PROCESSING	3	C	7	APR 14	
2	CSC24	COMMUNICATION SYSTEM LABORATORY-II	2	S	10	APR 14	
3	CSE3D	MOBILE COMPUTING	3	E	5	NOV 14	
3	CSE3F	HIGH SPEED SWITCHING ARCHITECTURES	3	D	6	NOV 14	
3	CSE3L	NONLINEAR FIBER OPTICS	3	B	8	NOV 14	
3	CSC31	PROJECT WORK PHASE - I	6	A	9	NOV 14	
4	CSC41	PROJECT WORK PHASE II	12	A	9	APR 15	

-End of Statement-

Cumulative Grade Point Average (CGPA) : 7.87

Classification : First Class



Medium of Instruction : ENGLISH

K.R. Nagar, Kovilpatti - 628 503

Date : 27/05/2015

[Signature]
SIGNATURE OF STUDENT

[Signature]
CONTROLLER OF EXAMINATIONS

GRADE RANGE

Range	91 - 100	81 - 90	71 - 80	61 - 70	56 - 60	50 - 55	<50	Incomplete
Grade	S	A	B	C	D	E	U	I
Points	10	9	8	7	6	5	0	0

FORMULAE FOR GPA & CGPA

$$\text{GPA} = \frac{\sum_{i=1}^n C_i \text{GP}_i}{\sum_{i=1}^n C_i}$$

$$\text{CGPA} = \frac{\sum_{i=1}^n C_i \text{GP}_i}{\sum_{i=1}^n C_i}$$

- where C_i - is the Credits assigned to the Course
 GP_i - is the point corresponding to the grade obtained for each Course
 n - is number of all Courses successfully cleared during the particular semester in the case of GPA and during all the semesters in the case of CGPA

Read by	<i>Normal</i>
Verified by	<i>h</i>



NATIONAL ENGINEERING COLLEGE

(An Autonomous Institution Affiliated to Anna University, Chennai)
K.R. Nagar, Kovilpatti - 628 503, Thoothukudi District, Tamilnadu.

TRANSFER CERTIFICATE

Sl.No. A 7989

Admission No. 131815

1. Name of the Student : KANAGAVEL.M
2. Name of the Father : MURUGAN.P
3. Name of the Mother : SUBBULAKSHMI. M
4. Date of Admission in the College : 02-09-2013
5. Date of Birth as entered in the Admission Register : 23-12-1990
6. Class and Branch in which the student studied at the time of leaving : SECOND YEAR
M.E., COMMUNICATION SYSTEMS
7. Date of Admission or promotion to the above class : 18/06/2014
8. Religion and Caste : HINDU VEERAKODI VELLALAR
9. Whether the student paid all the fees due to the college : YES
10. Whether qualified for degree : REFER THE DEGREE CERTIFICATE /
MARK STATEMENT /
11. Medium of instruction : English
12. Date on which the student actually left the college : 03/04/2015
13. Date of issue of Transfer Certificate : 08/05/2015



[Signature]
PRINCIPAL



ANNA UNIVERSITY

Chennai - 600 025.

Sl. No. **10133**

Date : **20.11.2015**

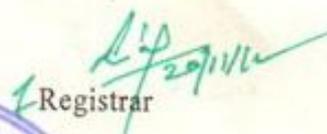
MIGRATION CERTIFICATE

It is hereby certified that this University has no objection to the undermentioned candidate in prosecuting his/her studies in any other University.

Name : **Kanagavel. M**
Register No. : **1352005**
Course & Branch : **M.E - Communication Systems**
College of Study : **National Engineering College**
Period of Study : **2013 - 2015**
Course Status : **Completed / Discontinued**
Degree Status : **Qualified / Not Qualified**

Chennai - 600 025

Date : **20.11.2015**


Registrar



आयकर विभाग
INCOME TAX DEPARTMENT



भारत सरकार
GOVT. OF INDIA

KANAGAVEL

MURUGAN

23/12/1990

Permanent Account Number

CCOPK5017M

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Signature



04072011

इस कार्ड के खोने / पाने पर कृपया सूचित करें / लौटायें -
आयकर पेन सेवा इकाई, एन एस डी एल
तीसरी मंजिल, सफ़ायर चैंबर्स,
बानेर टेलिफोन एक्सचेंज के नजदीक,
बानेर, पुना - 411 045.

If this card is lost / someone's lost card is found,
please inform / return to :
Income Tax PAN Services Unit, NSDL
3rd Floor, Sapphire Chambers,
Near Baner Telephone Exchange,
Baner, Pune - 411 045.

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081
e-mail: tininfo@nsdl.co.in

[Handwritten Signature]


இந்திய அரசாங்கம்
 Government of India


 கனகவேல் மு
 Kanagavel M
 பிறந்த நாள்/DOB: 23/12/1990
 ஆண்/ MALE



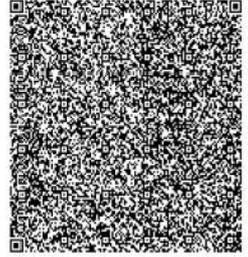
2594 2223 1680
 VID : 9165 1480 2628 5217

எனது ஆதார், எனது அடையாளம்


இந்திய தனிப்பட்ட அடையாள ஆணைய அமைப்பு
 Unique Identification Authority of India

முகவரி:
 முருகன் ப, 2/697-2, வ உ சி நகர், சூலக்கரை
 மேடு, கூரைக்குண்டு, விருதுநகர்,
 தமிழ் நாடு - 626003

Address:
 S/O Murugan P, 2/697-2, V O C Nagar,
 Soolakkarai Medu, Kooraikundu,
 Virudhunagar,
 Tamil Nadu - 626003



2594 2223 1680
 VID : 9165 1480 2628 5217

1047 help@uidai.gov.in www.uidai.gov.in

QR Code with Photograph


India Driving Licence(Tamil Nadu)

TN NT
TN67 2011 0008877



MCWG **LMV**
 27-12-2011 27-09-2018
 TN67 TN67

Present Address
 2/697-2 VDC NAGAR,
 SOOLAKKARAI MEDU,
 KOORAIKUNDU (CT), VIRUDHUNAGAR, 626003

Permanent Address
 2/697-2 VDC NAGAR,
 SOOLAKKARAI MEDU,
 KOORAIKUNDU (CT), VIRUDHUNAGAR, 626003

Name: **KANAGAVEL M**
 Father's Name: **MURUGAN P**

Date of Issue: **27-12-2011** Validity: **26-12-2031**
 Nationality: **INDIA**
 Date of Birth: **23-12-1990** Blood Group: **B+**





TN67 2011 0008877

Mobile No. *****2744
 Badge No. NIL
 Badge Dt:
 Endorsement Date: **27-09-2018**
 Endorsement No.: **TN67 /AED/0000883/2018**

Holder's Signature: _____
 Assistant Licensing Authority
 RTO, VIRUDHUNAGAR

Form 7 Rule 16(2)

Photocopy

R.Dis : 29890 / 04-11-2016

மாவட்டக் குறியீடு எண் / District Code : 2 6

BC



வட்டக் குறியீடு எண் / Taluk Code : 0 5

சான்றிதழ் எண் / Certificate No
8A97788C6A687C86

கிராமக் குறியீடு எண் / Village Code : 0 2 4

சாதிச் சான்றிதழ் COMMUNITY CERTIFICATE

விருதுநகர் மாவட்டம் **விருதுநகர்** வட்டம் **கூரைக்குண்டு** கிராமம் / நகரம் ,கதவு எண் **2/709**, **சூலக்கரை மேடு வ உ சி நகர்**, தெருவில் வசிக்கும் திரு **கனகவேல் மு** தந்தை பெயர் **முருகன் ப** என்பவர் **வீரகொடி வெள்ளாளர்** வகுப்பைச் சார்ந்தவர். அரசு ஆணை நிலை எண்:28, பிற்பட்ட மற்றும் மிகவும் பிற்பட்ட பிரிவின் நலத்துறை நாள் 19.07.1994 வரிசை எண் 118A படி பிற்பட்ட பிரிவினைச் சார்ந்தவர் எனச் சான்றளிக்கப்படுகிறது.

This is to certify that **KANAGAVEL M** son of **MURUGAN P** residing at Door No **2/709 1, SOOLAKKARAI MEDU V O C NAGAR**, Street, **KOORAIKUNDU** Village / Town of **Virudhunagar** Taluk of **Virudhunagar** District of the State of Tamil Nadu belongs to **Virakodi Vellala** Community, which is recognized 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. 118A .

1. திரு **கனகவேல் மு** என்பவரும் அவருடைய குடும்பத்தினரும் தமிழ்நாட்டில் **விருதுநகர்** மாவட்டத்தில் **விருதுநகர்** வட்டத்தில் **கூரைக்குண்டு** கிராமத்தில்/நகரத்தில்,கதவு எண் **2/709**, **சூலக்கரை மேடு**, **வ உ சி நகர்** தெரு, என்ற விலாசத்தில் வசித்து வருகிறார்கள் எனச் சான்றளிக்கப்படுகிறது.

2. It is certified that **Thiru. KANAGAVEL M** and his family ordinarily reside(s) at Door No. **2/709, 1, V O C NAGAR Street, SOOLAKKARAI MEDU , KOORAIKUNDU** Village / Town of **Virudhunagar** Taluk of **Virudhunagar** District of Tamil Nadu.

மின்கையொப்பம்/Digital Signature : **04-11-2016** அன்று **3:54:3 PM** நேரத்தில் இடப்பட்டது.

பெயர்/Name : Senthivel S

பதவி /Designation : மண்டல துணை வட்டாட்சியர் / Zonal Deputy Tahsildar

இடம் /Place : விருதுநகர் வட்டம் / Virudhunagar Taluk , விருதுநகர் மாவட்டம் / Virudhunagar District

குறிப்பு/ Remarks :

1. இத்தகவல்கள்**07-11-2016** அன்று **0:56:58 PM** நேரத்தில் அச்சடிக்கப்பட்டது.

The certificate was printed on **07-11-2016** at **0:56:58 PM** hrs.

2. ஆவண விவரங்களை மேலும் உறுதி செய்துக்கொள்ள வேண்டுமெனில் தாங்கள் வட்டாட்சியர் அலுவலகத்தை அணுகி உறுதிப் படுத்திக்கொள்ளவும்.

For Further certificate confirmation and details,you may approach the Tahsildar concerned.



ஆவண விவரங்களை உறுதி செய்ய :

(அ) **8A97788C6A687C86** என்ற தனிப்பட்ட சான்றிதழ் எண்ணை <https://edistricts.tn.gov.in/revenue/verifyCertificate.html> ல் உள்ளீடு செய்து சரிபார்க்கவும்.

(ஆ) கைப்பேசி கேமராவின 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

Genuineness of the certificate can be verified by

(a) Keying in the unique certificate number **8A97788C6A687C86** in the URL <https://edistricts.tn.gov.in/revenue/verifyCertificate.html>

(b) Reading the 2D barcode with mobile barcode reader and seeing online using 3G/GPRS.