



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

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

Date of Application:30-12-2020

Department	ELECTRONICS AND COMMUNICATION ENGINEERING	Application No.	202020224
Area of Research	RF COMMUNICATION ( ANTENNA)	Research Mode	PART TIME

**Name** :ASHA SUSAN JOHN  
**Date of Birth / Age** :08-08-1987 / 33 Years  
**Gender** :FEMALE  
**Category** :OC  
**e-Mail ID** :asha.s.john@gmail.com  
**Mobile** :9446643205



<b>Father's/Husband's Name</b>	AGIL MATHEW	<b>Father's/Husband's Occupation</b>	ENGINEER
<b>Family Income</b>	2.22L	<b>Residential Type</b>	RURAL
<b>Birth Place</b>	KUWAIT	<b>Mother Tongue</b>	MALAYALAM
<b>Religion</b>	CHRISTIAN	<b>Martial Status</b>	MARRIED
<b>Aadhaar No.</b>	315801051322	<b>PAN No.</b>	BBIPJ9745B
<b>Physically Challenged</b>	NO	<b>Type of Disability</b>	-
<b>Address for Communication:</b> ELANJICKAL HOUSE MUNDUKOTTACKAL P. O. THAZHE VETTIPURAM PATHANAMTHITTA DISTRICT KERALA INDIA Pin-689649		<b>Permenant Address:</b> ELANJICKAL HOUSE MUNDUKOTTACKAL P. O. THAZHE VETTIPURAM PATHANAMTHITTA DISTRICT KERALA INDIA Pin-689649	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
M. TECH	COMMUNICATION ENGINEERING	MAHATHMA GANDHI UNIVERSITY/ AMAL JYOTHI COLLEGE OF ENGINEERING	2012	7.84	FIRST CLASS	REGULAR
B. TECH	ELECTRONICS AND COMMUNICATION ENGINEERINGAND	MAHATHMA GANDHI UNIVERSITY/ AMAL JYOTHI COLLEGE OF ENGINEERING	2009	74.47%	FIRST CLASS	REGULAR

Experience					
Organization	Designation	Experience From	Experience TO	Work Nature	
COLLEGE OF ENGINEERING KIDANGOOR	ADHOC LECTURER	2012-01-23	2012-03-31	TEACHING	
ST. THOMAS COLLEGE OF ENGINEERING AND TECHNOLOGY, CHENGANNUR	ASSISTANT PROFESSOR	2017-01-03	2020-12-30	TEACHING	

Payment Details
-----------------

Transaction ID	Reference	Date of transaction	Amount	Status
202020224_201230214435	VUR29610486920	30-12-2020	600	SUCCESS

*Submitted By: ASHA SUSAN JOHN*  
*Area of Research: RF Communication (Antennas)*

## **Research Proposal**

**Proposed Title:** Circular Patch Yagi Antenna

### **Problem Statement:**

Many of the modern wireless devices now a day's i.e. laptops, tablets and mobile phones requires small size antennas as there is much acute space available in these devices due to their compact sizes. For these devices and applications, micro strip patch antennas (MPAs), are the most preferred type. The MPAs have gained tremendous importance because of their compact size, low profile and ease of fabrication[2] , However, there are few limitations associated with MPA design which includes lower efficiency, gain and low bandwidth characteristic of the antenna elements i.e. usually 1-3% for the basic patch element,

### **Scientific Background:**

The bandwidth of an antenna depends on the shape of the patch, its resonant frequency ( $f$ ), dielectric constant and the thickness ( $h$ ) of the substrate. Thick substrates with low  $\epsilon_r$  increase the bandwidth, Although, if the substrate thickness is increased, problem with antenna integration and surface wave propagation can occur. [1]To overcome these issues, several techniques have been implemented and their respective results are analyzed in detail. In order to enhance the bandwidth many efforts are made in which the focus of the work was more on making the antenna's impedance bandwidth better. There are several techniques available that can be used to enhance the bandwidth of antenna, One of the efficient techniques that is preferred for increasing the bandwidth of the antenna is log- periodic antenna (LPA) design technique.

### **Novelty:**

Now a day, wireless local area network (WLAN) applications are very popular. The IEEE 802.11a, operating at 5GHz band facilitates relatively higher data-rate than the IEEE 802.11 b/g which operates at 2.4GHz band, A lot of efforts are being made to combine the WLAN a/b/g bands together to achieve multiband operation. In order to acquire multiband antenna, a technique is presented in this paper using two square patch elements, each for both frequency bands. An inset feed method is used in this design for antenna feeding. Considering this scenario, a LPA array operating on multiple frequencies will be an effective solution. The simulation of the proposed antenna is performed in Agilent Advanced Design System (ADS), an electromagnetic simulator. Its simulation tool is based upon full-wave Method of Moment (MoM) numerical technique.

**Objective:**

To design and fabricate a yagi antenna with circular patch feed and circular reflector and directors.

**Methodology:**

High directivity & Gain are features of a Yagi-Uda Antenna. Better Signal Quality, Good bandwidth & low noise are the features of a patch antenna. Thus to obtain these requirements, a combination of Yagi-Uda Antenna and patch antenna is proposed.[16] A microstrip patch is placed as the feeding element of a Yagi-Uda Antenna array. This results in an amplified effect where the features of a rectangular patch are improved by the effect of Yagi design. This design methodology improves the gain of patch antenna as well as improves the signal quality of a Yagi antenna. Thereby reducing the disadvantages in both of the antenna structures.

**Time-line:**

Stages of Research	0-6 months	6-12 months	12-18 months	18-24 months	24-30 months	30-36 months
Literature Review	Active	Active	Completed	Completed	Completed	Completed
Planning of Research Methodology	Completed	Active	Active	Active	Completed	Completed
Selection of appropriate research techniques	Completed	Completed	Active	Active	Active	Completed
Analysis	Completed	Completed	Completed	Active	Active	Completed
Findings and recommendations	Completed	Completed	Completed	Completed	Active	Active
Data Compilation, Publications and Final Report	Completed	Completed	Completed	Completed	Completed	Active

**Possible outcome:**

The combined effect of properties of each antenna brings the advantages of both designs together & overcomes the disadvantages of both designs altering the gain and bandwidth of the existing systems to a considerable level. The other factors like noise immunity directivity signal quality is expected to be much better than that of the individual designs.

## References:

- 1 Muhammad Nazrul Islam , Markus Berg , and Erkki T. Salonen “High Gain Dual-Polarized Non-uniform Spacing Stacked Patch Yagi-Uda Type Antenna” 2019 16th International Symposium on Wireless Communication Systems (ISWCS)
- 2 Constantine A Balanis - Antenna Theory
- 3 ASyeda Areeba Nasir ; Sana Arif ; Muhammad Mustaqim ; Bilal A. Khawaja “A log-periodic microstrip patch antenna design for dual band operation in next generation Wireless LAN applications” 2013 IEEE 9th International Conference on Emerging Technologies (ICET)
- 4 ROBERT E. MUNSON - “Conformal Microstrip Antennas and Microstrip Phased Arrays”Year: 2012 | Conference Paper | Publisher: IEEE
- 5 International Journal of Microwave Science and Technology (<https://www.hindawi.com/journals/ijmst/2010/297519/>)
- 6 Microstrip Patch Antenna – Designing at 2.4 GHz Frequency (Biological and Chemical Research, Volume 2015, 128-132 | Science Signpost Publishing)
- 7 High Return loss Microstrip patch antenna design for Radio applications(IEEE)
- 8 Low Return Loss Slotted Rectangular Microstrip Patch Antenna at 2.4 GHz (IEEE)
- 9 A Comparative Study of Rectangular and Circular Microstrip Fed Patch Antenna at 2.45 GHz (International Journal of Scientific & Engineering Research, Volume 5, Issue 10, October-2014)
- 10 Vincent F. Fusco - Foundations of Antenna Theory and Techniques
- 11 Everything RF patch design calculator(<https://www.everythingrf.com/rf-calculators/microstrip-patch-antenna-calculator>)
- 12 G. Thiele, “Analysis of yagi-uda-type antennas,” IEEE Transactions on Antennas and Propagation, vol. 17, no. 1, pp. 24–31, 1969.
- 13 E. A. Jones and W. T. Joines, “Design of yagi-uda antennas using genetic algorithms,” IEEE Transactions on Antennas and Propagation, vol. 45, no. 9, pp. 1386–1392, 1997.
- 14 D. Cheng and C. Chen, “Optimum element spacings for yagi-uda arrays,” IEEE Transactions on Antennas and Propagation, vol. 21, no. 5, pp. 615–623, 1973. Project 2019 2.4 GHz Yagi-Patch Antenna Department of ECE, STCET 33
- 15 C. Chen and D. Cheng, “Optimum element lengths for yagi-uda arrays,” IEEE Transactions on Antennas and Propagation, vol. 23, no. 1, pp. 8–15, 1975.
- 16 A. P. Gorbachev, O. O. Kibirev, and V. S. Churkin, “A modified broadband planar quasi-yagi antenna,” in Actual Problems of Electronic Instrument Engineering (APEIE), 2010 10th International Scientific-Technical Conference on. IEEE, 2010, pp. 46–48.
- 17 D. Arceo and C. A. Balanis, “A compact yagi-uda antenna with enhanced bandwidth,” IEEE Antennas and Wireless Propagation Letters, vol. 10, pp. 442–445, 2011.
- 18 J. Yeo and J.-I. Lee, “Bandwidth enhancement of double-dipole quasi-yagi antenna using stepped slotline structure,” IEEE Antennas and Wireless Propagation Letters, vol. 15, pp. 694–697, 2016.
- 19 M. N. Islam, M. Berg, T. Tarvainen, and E. T. Salonen, “Wide band l-probe fed circular patch antenna with elliptical parasitic patch and two elements array,” Progress In Electromagnetics Research C, vol. 60, pp. 169–177, 2015.
- 20 Z. Yang, K. C. Browning, and K. F. Warnick, “High-efficiency stacked shorted annular patch antenna feed for ku-band satellite communications,” IEEE Transactions on Antennas and Propagation, vol. 64, no. 6, pp. 2568–2572, 2016.
- 21 O. Kramer, T. Djerafi, and K. Wu, “Vertically multilayer-stacked yagi antenna with single and dual polarizations,” IEEE Transactions on Antennas and Propagation, vol. 58, no. 4, pp. 1022–1030, 2010

Register No. } 21075  
&  
Year } May 2009

# Mahatma Gandhi University

(Established by Kerala State Legislature by Notification No. 3431/Leg.C1/85/Law, dated 17th April 1985)



## FACULTY OF ENGINEERING & TECHNOLOGY

*The Syndicate of the Mahatma Gandhi University*

*hereby makes known that*

*Asha Susan John*

*has been admitted to the*

*Degree of Bachelor of Technology*

*under Electronics and Communication Branch*

*he/she having been certified by duly appointed examiners to be*

*qualified to receive the same, and having been by them placed*

*in the First Class at the*

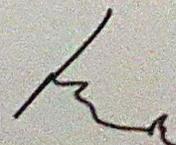
*examination held in May 2009*

*Given under the seal of the University.*

University Buildings  
Priyadarshini Hills P.O.  
Kottayam - 686 560  
Kerala, India

Dated 31 December 2010



  
Vice-Chancellor

Register No. 140706  
&  
Year February 2012

# Mahatma Gandhi University

(Established by Kerala State Legislature by Notification No. 3431/Leg. C1/85/Law, dated 17th April 1985)



## FACULTY OF ENGINEERING & TECHNOLOGY

*The Syndicate of the Mahatma Gandhi University*

*hereby makes known that*

**Asha Susan John**

*has been admitted to the*

*Degree of Master of Technology*

*under*..... **Communication Engineering**..... *Branch*

*he/she having been certified by duly appointed examiners to be qualified to receive the same, and having been by them placed*

*in the*..... **First Class**..... *at the*

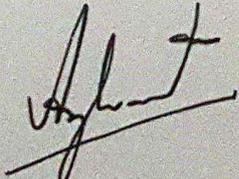
*examination held in*..... **February 2012**.....

*Given under the seal of the University.*

University Buildings,  
Kottayam - 686 560  
Kerala, India

Dated **30 November 2012**



  
Vice-Chancellor

# Mahatma Gandhi University

Book No. : 82

Section : EL- X X

Register Number .....21075.....



Serial No. : 48

KOTTAYAM,

127 AUG 2009  
Dated: .....

## MEMORANDUM

The following marks were awarded to Shri/Smt. Asha Susan John  
at the Eighth Semester (Final) B.Tech. Degree Examination held in May 2009.

Branch: Electronics and Communication Engineering

SUBJECTS	Marks awarded	Minimum marks required for a pass		Maximum Marks
		Complete Pass	Pass in individual subject	
A. Computer Networks	Written 70 Sessional 48 Total 118	40	40	100
B. Advanced Communication Systems	Written 73 Sessional 44 Total 117	40	40	100
C. Advanced microprocessors	Written 48 Sessional 44 Total 92	40	40	100
D. Television Engineering	Written 74 Sessional 44 Total 118	40	40	100
E. Elective - II <u>Advanced Mathematics</u>	Written 94 Sessional 46 Total 140	40	40	100
F. Elective - III <u>Embedded System</u>	Written 61 Sessional 39 Total 100	40	40	100
G. Systems Lab	Practical 79 Sessional 49 Total 128	40	40	100
H. Project Design and Seminar	Sessional 84	-	-	100
I. Viva-voce	30	20	25	50
Grand total	927	600	-	1200
Carry over marks of I & II to VII Semesters	5552	-	-	7500
Aggregate	6479	-	-	8700
Aggregate in words	Six Four Seven Nine			

Pass Minimum : Complete Pass: 40% of Written/Practical for each subject and 50% of overall aggregate.  
Pass in individual subject: 40% of Written/Practical and 50% of the total of each subject.

Marks entered by : Sreelekha.v.G

Marks checked by : Sumitha.K.R

Section Officer : prems

Asst. Registrar :

CONTROLLER OF EXAMINATIONS

# Mahatma Gandhi University

(Established by Kerala State Legislature by Notification No.3431/Leg. C/85/Law, dated 17th April 1985)

Section: EI XXXIV  
Serial No.: 1205482

Student ID: MTAG2009P049084856



Kottayam,

23-Apr-2012

## MEMORANDUM

The following marks were awarded to Shri./Smt  
**ASHA SUSAN JOHN**  
candidate with Register No. **140706** at the Fourth Semester M Tech Degree Examination February 2012

SUBJECTS	Credit	Grade/GPA Awarded	Marks								
			External			Internal			Total		
			Awarded	Min for Pass	Max	Awarded	Min for Pass	Max	Awarded	Min for Pass	Max
<b>FACULTY OF ENGINEERING AND TECHNOLOGY</b>											
<b>M TECH: COMMUNICATION ENGINEERING</b>											
CE 401: Masters Thesis	20	B	105	60	150	135	75	150	240	150	300
CE 402: Masters Comprehensive Viva Voce		-	75	50	100				75	50	100
TOTAL FOR Semester IV									315	200	400
Semester IV - GPA	20	9.00									
TOTAL FOR Semester I									799	550	1100
Semester I - GPA	25	7.52									
TOTAL FOR Semester II									724	550	1100
Semester II - GPA	25	7.16									
TOTAL FOR Semester III									115	75	150
Semester III - GPA	10	8.00									
GRAND TOTAL									1953	1375	2750
Cumulative Grade Point Average	80	7.84									
*****End of statement*****											

(One Nine Five Three Only)

Checked by:

Section Officer:



CONTROLLER OF EXAMINATIONS

ASHA SUSAN JOHN  
Elanjickal House  
Thazhe-Vettipuram  
Pathanamthitta  
Kerala

Director (Research and Development)  
Kalasalingam Academy of Research and Education  
Anand Nagar, Krishnankoil-626126  
Tamil Nadu

**SUB: UNDERTAKING LETTER FOR TRANSFER CERTIFICATE**

Mam,

I am not able to produce the Transfer Certificate at the moment as i have not collected the same from the respective college. Presently I am on Maternity Leave which has been an issue for me to travel to the college in the present situation. I assure you that I will produce the same within two months duration. Please consider this request.

Thanking You.

Asha Susan John.

Ph. 09446643205  
Email:asha.s.john@gmail.com

30.12.2020

ASHA SUSAN JOHN  
Elanjickal House  
Thazhe-Vettipuram  
Pathanamthitta  
Kerala

Director (Research and Development)  
Kalasalingam Academy of Research and Education  
Anand Nagar, Krishnankoil-626126  
Tamil Nadu

**SUB: UNDERTAKING LETTER FOR EXPERIENCE CERTIFICATE**

Mam,

I am not able to produce the Experience Certificate at the moment as presently I am on maternity leave from the institution that I am working. I assure you that I will provide you with the same within two months duration. Please consider this request.

Thanking You.

Asha Susan John.

Ph. 09446643205  
Email:asha.s.john@gmail.com

30.12.2020

आयकर विभाग

INCOME TAX DEPARTMENT



भारत सरकार

GOVT. OF INDIA

ASHA SUSAN JOHN

PULIYODIL KOSHY JOHN

08/08/1987

Permanent Account Number

BBIPJ9745B



*Handwritten signature in black ink.*

Signature

*Handwritten signature in blue ink.*



भारत सरकार

Government of India



Asha Susan John

DOB: 08/08/1987

Female



3158 0105 1322

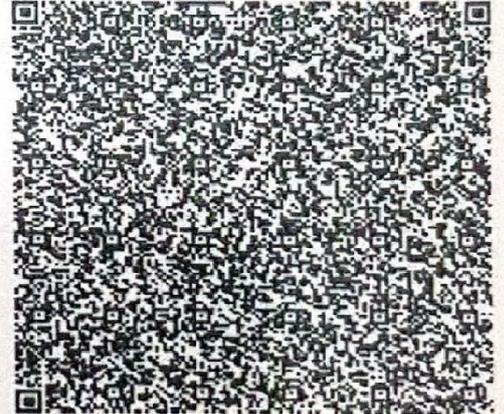
मेरा आधार, मेरी पहचान



भारतीय विशिष्ट पहचान प्राधिकरण

Unique Identification Authority of India

Address: C/O Agil Mathew, Elanjickal,  
Mundukottackal P O, Thazhe Vettipuram,  
Pathanamthitta, Mundukottackal, Kerala, 689649



3158 0105 1322



1947



help@uidai.gov.in

WWW

www.uidai.gov.in

Agil

ASHA SUSAN JOHN  
Elanjickal House  
Thazhe-Vettipuram  
Pathanamthitta  
Kerala

Director (Research and Development)  
Kalasalingam Academy of Research and Education  
Anand Nagar, Krishnankoil-626126  
Tamil Nadu

**SUB: UNDERTAKING LETTER FOR NOC**

Mam,

I am not able to produce the No Objection Certificate at the moment as presently I am on maternity leave from the institution that I am working. I assure you that I have informed my officials about this and I will be able to provide you with the same within two months duration. Please consider this request.

Thanking You.

Asha Susan John.

Ph. 09446643205  
Email:asha.s.john@gmail.com

30.12.2020