



NETAJI SUBHAS INSTITUTE OF TECHNOLOGY AMHARA, BIHTA, PATNA


DEPARTMENT OF
ELECTRONICS & COMMUNICATION ENGINEERING

Circular

Ref. No. : ECE/08/01/18

Date: 06/08/2018

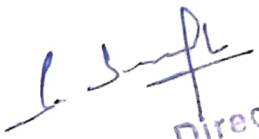
All the faculties of Electronics & Communication engineering department are hereby requested that to submit their area of interest & specialization to the project coordinator and same to the Head of Department on or before 09/08/2018 towards the faculty supervisor (Project Guide) for final year students.



Project Coordinator
Rajani Ranjan



Copy to:

1. Principal
2. HOD, ECE
3. Chairman, BOG
4. All concerned faculty member of ECE Department
5. Department Notice Board


Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106


Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna



NETAJI SUBHAS INSTITUTE OF TECHNOLOGY AMHARA, BIHTA, PATNA

DEPARTMENT OF
ELECTRONICS & COMMUNICATION ENGINEERING

Circular

Ref. No. : ECE/08/02/18

Date: 13/08/2018

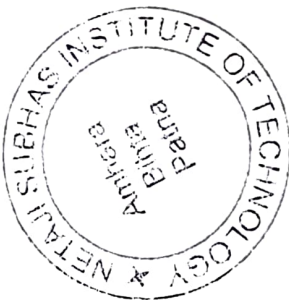
All the VII semester students are hereby informed that the **Minor Project topic selection , group formation & choice of guide** format is attached here with & should be positively submitted in the following format latest by 23/08/2018, after this schedule date acceptance of above mentioned subjects will not be considered in any circumstances & students will liable for this.

Note: -

1. A group will be minimum formation of 3 students & once the group is formed it cannot be change in any circumstances. The same group will be valid for major project also.
2. Once the topic is selected with the concern of allotted guide, it cannot be changed in any circumstances.



Project Coordinator


Rajani Ranjan



Copy to:

1. Principal
2. HOD, ECE
3. All concerned faculty member of ECE Department
4. Department Notice Board


Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106


Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna



NETAJI SUBHAS INSTITUTE OF TECHNOLOGY AMHARA, BIHTA, PATNA

DEPARTMENT OF
ELECTRONICS & COMMUNICATION ENGINEERING

Notice

Ref. No.: ECE/08/03/18

Date: 18/8/2018

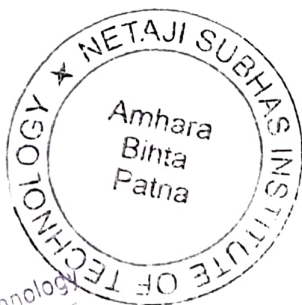
Following is the area of interest or specialization of faculty members. All Students of VII Semester are hereby informed that to contact the faculty according to their area of interest or specialization and finalize as the project guide / Supervisor till 21/8/2108

SL. No.	Name of Faculty/Guide	Area of Specialization
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image Processing
2.	Mr. abhishek panda	Image Processing
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System
4	Mr. Kundan Kumar Singh	Biomedical Instrumentation
5	Mr. S. Afroz Kazimi	Embaded System
6	Miss. Neha Chauhan	VLSI & Microelectronics
7	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing
8	Mr. Gautam Kumar	Analog Signal Processing / Analog Circuit /VLSI Design
9	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design
10	Mr. Deepak Kumar	Process Control

Project Coordinator

Mr. Rajani Ranjan

Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106



Principal

Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

Electronics & Communication Engineering Department

Ref No: ECE/08/03/18

Date: 21 / 08 /2018

Notice


All the VII semester students are hereby informed that the **Minor Project** synopsis should be strictly submitted in the following format or areas latest by 29th August 2018. No late submission will be entertained.

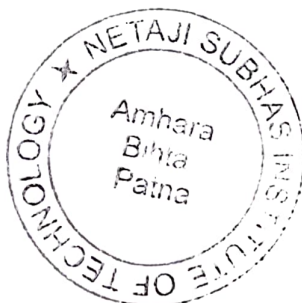
For Minor Project

Synopsis, preferably, should be of about 3-4 pages. The content should be as brief as is sufficient enough to explain the objective and implementation of the project that the candidate is going to take up. The write up must adhere to the guidelines and should include the following.

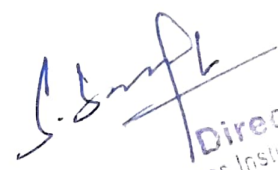
- The project thesis shall be computer typed (English- British, Font -Times Roman New, Size- 12 point) and printed on A4 size paper.
- The Thesis for minor project shall be typed on one side only with double space with a margin 3.5 cm on the left, 2.5 cm on the top, and 1.25 cm on the right and at bottom. Line space should be 1.5.


1. Name / Title of the Project
2. Statement about the Problem
3. Why is the particular topic chosen?
4. Objective and scope of the project
5. Methodology (including a summary of the project)
6. Hardware & Software to be used
7. Testing Technologies used
8. What contribution would the project make?


Project Coordinator
Mr. Rajani Ranjan




Head of Department
Department of Electronics & Communication Engineering
Netaji Subhas Institute of Technology


Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106


Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Format for B.Tech Project Synopsis

SPECIFICATIONS/GUIDELINES FOR SYNOPSIS

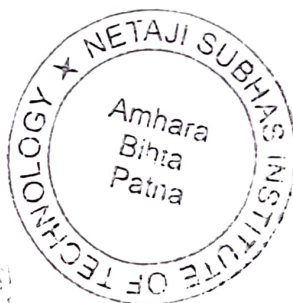
1. The synopsis shall be computer typed (English- British, Font -Times Roman New, Size-12 point) and printed on A4 size paper.
2. The Synopsis shall be typed on one side only with double space with a margin 3.5 cm on the left, 2.5 cm on the top, and 1.25 cm on the right and at bottom. Line space should be 1.5
3. In the synopsis, the title page [Refer sample sheet (inner cover)] should be given first. This should be followed by index, notations/nomenclature.
4. The diagrams should be printed on a light/white background; Tabular matter should be clearly arranged. Decimal point may be indicated by full stop (.). The caption for Figure must be given at the BOTTOM of the Fig. and Caption for the Table must be given at the TOP of the Table.
5. A student is required to prepare 3 (three) neatly typed copies of his minor project report as per the format. The all 3 (Three) copies should be in dark red Maroon color binding.
6. Following sequence should be followed for preparing synopsis


I Title page: Title page should have the following details as per the format given in annexure 1

II Project Introduction form with guide's approval as per format given (Certificate)

III Acknowledgement

IV Abstract




Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

Annexure 1: SAMPLE TITLE PAGE

PROJECT TITLE (24pt. bold)

PROJECT SYNOPSIS (14pt. bold)

OF MINOR PROJECT (12pt.)

BACHELOR OF TECHNOLOGY (14 Pt. bold)

Branch (16pt.)

NSIT Logo

Under the Guidance of (14 pt. bold)
(Name of the Guide) (14 pt. Bold)
Designation (12 point Bold)


SUBMITTED BY


VIJAY PRATAP SINGH (14pt)

August 2015

NETAJI SUBHAS INSTITUTE OF TECHNOLOGY, (16 Pt. Bold)

BIHTA, PATNA (16pt. bold)


Netaji Subhas Institute of Technology,
Amhara, Bihta, Patna, Bihar
PIN-801106



CERTIFICATE (14 pt. bold)

This is to certify that **Mr. Prasanna Ramachandran, Mr. T.S.Keshav, Mr. Laxmikant Minz, Mr. Vamsikrishna Parupalli** have carried out their minor project work on **Antenna Design, Simulation and Fabrication** in the Electronics and Communication Engineering Department of NSIT, Patna during the year **2006-2007**. Their work is approved for submission in partial fulfillment of the requirements for the degree of "Bachelor of Technology".

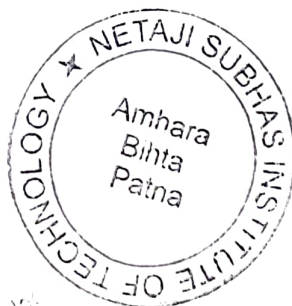
Mrs. Reema Dhar (12 pt. bold)
Head of the Department
Dept. of ECE, NSIT

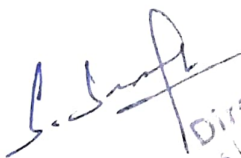
Mr./Mrs.
Project Guide
Dept. of ECE, NSIT

Countersigned By (12 pt. bold)

(Name of the Project Coordinator) (12 pt. bold)
Project Coordinator (12 pt. bold)
Dept. of ECE, NSIT

Date: --/--/----




Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

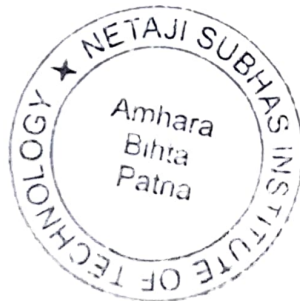
ACKNOWLEDGEMENTS (14 pt. bold)


We would like to thank our Project Guide, Dr. A.S. Gandhi, for his continuous support and encouragement. It was he who provided an aim and direction to this project and constantly pushed us to work harder on it.

We would also like to thank the Communication Lab in charge, Mr. Prashant Jaronde for providing us all hardware and software tools required for completing this project. His assistance was invaluable.

(12 pt.)

Name of the Student




Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
Pin - 801203

ABSTRACT (14 pt. bold)

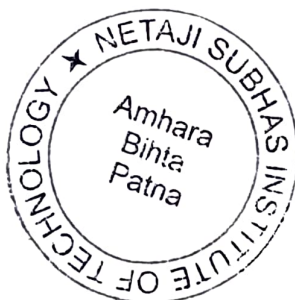
Wireless technology is one of the main areas of research in the world of communication systems today and a study of communication systems is incomplete without an understanding of the operation and fabrication of antennas. This was the main reason for our selecting a project focusing on this field.

The field of antenna study is an extremely vast one, so, to grasp the fundamentals we used a two pronged approach by dividing ourselves into groups.

The first group focused on the fabrication and testing of a slotted waveguide Omni directional antenna and a biquad directional antenna.

The second group focused on the design and simulation of patch antennas (which are widely used in cell phones today) with an emphasis on optimization of a 1.9 GHz rectangular probe fed patch antenna. A dual band antenna and a microstrip fed patch antenna, used in the communication lab were also simulated.

(12 pt.)



A handwritten signature in blue ink, appearing to read "J. Singh".

Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106



NETAJI SUBHAS INSTITUTE OF TECHNOLOGY AMHARA, BIHTA, PATNA

DEPARTMENT OF
ELECTRONICS & COMMUNICATION ENGINEERING

Faculty / Guide Distribution List:

Date:-24-08-2018

Group No.	Name of Students	Roll No.	Guide Name
1	Priyanka Mishra	152004	Mr. Abhishek Panda
	Priyanka Kumari	152015	
	Divya Sharma	152062	
	Nisha Kumari	152001	
2	Fouziya	155132	Mr. Deepak Kumar
	Nitish Kumar	152042	
	Alok Kumar	152014	
3	Shivam Kumar	152003	Mr. Kunadan Kumar singh
	Md. Shamshad Alam	152061	
	Vipul Garg	152063	
4	Shatrudhan Singh	152002	Dr. (Mrs.) Reema Dhar
	Vivek Kumar	152033	
	Gaurav Kumar	152018	
5	Shivam Kumar	152010	Miss. Neha Chauhan
	Prity Kumari	152039	
	Priya Kumari	152036	
6	Mansi Rani	152009	Mr. Rajani Ranjan
	Anjali Kumari	152034	
	Astha Kumari	152022	
7	Vikram Vishal	152041	Mr. Gautam Kumar
	Saket Raj	152030	
	Rahul Rajak	152026	
8	Aman Kumar	152025	Md. (Mr.) Hasmat Ali
	Aryan Kumar	152037	
	Kumar Utkarsh	152028	
9	Annu Ananya	152029	Mr. S. Afroz Kazimi
	Rani Kumari	152031	
	Rupanjali	152032	
10	Alok Kumar	152023	Miss. Pallavi Singh
	Saurav Kumar	152047	
	Abhishek Kumar	152013	
11	Sapna Kumari	152035	Mr. S. Afroz Kazimi
	Dilkash Jahan	152038	
	Vijay Pratap	152040	

Project Coordinator

Mr. Rajani Ranjan

[Signature]
24/08/18

[Signature]
Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna
PIN-261106



[Signature]
Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 1

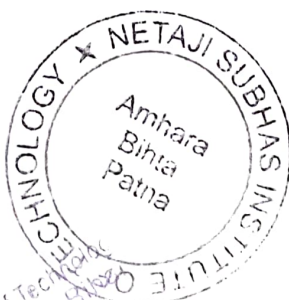
Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	2
2.	Mr. Abhishek Panda	Image processing	1
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	6
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	10
5.	Mr. S. Afroz Kazimi	Embaded System	5
6.	Miss. Neha Chauhan	VLSI & Microelectronics	4
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	3
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	7
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	8
10.	Mr. Deepak Kumar	Process Control	9

For Department Use Only:

Faculty/ Guide Allocated: Mr. Abhishek Panda

Sd/- 24/08/18
Project Coordinator



Sd/-
Head of Department
Department of Electronics & Communication Engineering
Netaji Subhas Institute of Technology

Sd/-
Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Sd/-
Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, PIN-801106

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 2

Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	3
2.	Mr. Abhishek Panda	Image processing	3
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	2
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	6
5.	Mr. S. Afroz Kazimi	Embaded System	7
6.	Miss. Neha Chauhan	VLSI & Microelectronics	3 4
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	5
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	10
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	9
10.	Mr. Deepak Kumar	Process Control	1

For Department Use Only:

Faculty/ Guide Allocated: Ms. Deepak Kumar

Sd/- 24/08/18
Project Coordinator



Deepak
Head of Department
Department of Electronics & Communication Engineering
Netaji Subhas Institute of Technology

Deepak
Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, PIN-801106

Deepak
Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 3

Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	8
2.	Mr. Abhishek Panda	Image processing	9
3.	Mr. (Mr.) Hasmat Ali	VLSI & Control System	2
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	1
5.	Mr. S. Afroz Kazimi	Embaded System	10
6.	Miss. Neha Chauhan	VLSI & Microelectronics	4
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	5
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	3
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	6
10.	Mr. Deepak Kumar	Process Control	7

For Department Use Only:

Faculty/ Guide Allocated: Mr. Kundan Kumar Singh

Sd/ [Signature]
 Project Coordinator



[Signature]
 Head of Department
 Department of Electronics & Communication Engineering
 Netaji Subhas Institute of Technology, Bihta, Patna

[Signature]
 Principal
 Netaji Subhas Institute of Technology
 Amhara, Bihta, Patna

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 4

Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	2
2.	Mr. Abhishek Panda	Image processing	3
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	6
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	7
5.	Mr. S. Afroz Kazimi	Embaded System	9
6.	Miss. Neha Chauhan	VLSI & Microelectronics	4
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	3
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	2
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	5
10.	Mr. Deepak Kumar	Process Control	10

For Department Use Only:

Faculty/ Guide Allocated: Dr. (Mrs.) Reema Dhar

Sd/-
Project Coordinator



Sd/-
Director
Netaji Subhas Institute of Technology,
Amhara, Bihta, Patna, India
PIN-801103

Sd/-
Head of Department

Sd/-
Principal

Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 5

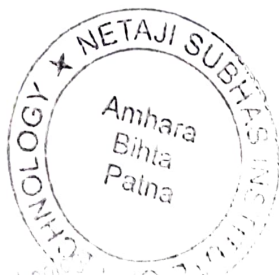
Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	3
2.	Mr. Abhishek Panda	Image processing	6
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	5
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	4
5.	Mr. S. Afroz Kazimi	Embaded System	10
6.	Miss. Neha Chauhan	VLSI & Microeletronics	2
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	9
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	8
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	1
10.	Mr. Deepak Kumar	Process Control	7

For Department Use Only:

Faculty/ Guide Allocated: Miss. Neha Chauhan

Sd/-
Project Coordinator



Sd/-

Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801405

Sd/-
Head of Department

Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 6

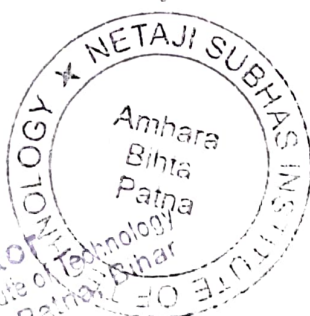
Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	9
2.	Mr. Abhishek Panda	Image processing	8
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	3
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	2
5.	Mr. S. Afroz Kazimi	Embaded System	6
6.	Miss. Neha Chauhan	VLSI & Microelectronics	4
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	10
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VLSI Design	7
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	1
10.	Mr. Deepak Kumar	Process Control	5

For Department Use Only:

Faculty/ Guide Allocated: Ms. Rajani Ranjan

Sd/- 24/08/18
Project Coordinator



Ranjana
Head of Department

Department of Electronics & Communication Engineering
 Netaji Subhas Institute of Technology

[Signature]
Principal

Netaji Subhas Institute of Technology

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 7

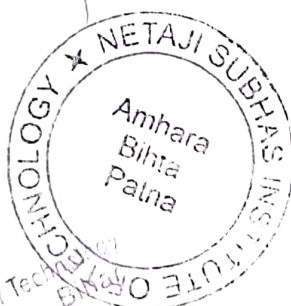
Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	7
2.	Mr. Abhishek Panda	Image processing	3
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	10
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	5
5.	Mr. S. Afroz Kazimi	Embaded System	4
6.	Miss. Neha Chauhan	VLSI & Microelectronics	9
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	8
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	1
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	2
10.	Mr. Deepak Kumar	Process Control	6

For Department Use Only:

Faculty/ Guide Allocated: Mr. Gautam Kumar

Sd/- 24/08/18
Project Coordinator



S. Singh
Director
Netaji Subhas Institute of Technology,
Amhara, Bihta, Patna, Bihar
PIN-801106

Ranjan
Head of Department
Department of Electronics & Communication Engineering
Netaji Subhas Institute of Technology

S. Singh
Principal
Netaji Subhas Institute of Technology

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 8

Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	7
2.	Mr. Abhishek Panda	Image processing	9
3.	Mr. (Mr.) Hasmat Ali	VLSI & Control System	2
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	1
5.	Mr. S. Afroz Kazimi	Embaded System	5
6.	Miss. Neha Chauhan	VLSI & Microelectronics	4
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	3
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VLSI Design	6
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	10
10.	Mr. Deepak Kumar	Process Control	8

For Department Use Only:

Faculty/ Guide Allocated: Mr. (Mr.) Hasmat Ali

Sd/- 5/4/18
Project Coordinator

Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna
PIN-201103



Head of Department
Department of Electronics & Communication Engineering
Netaji Subhas Institute of Technology

Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 9

Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	9
2.	Mr. Abhishek Panda	Image processing	6
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	2
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	3
5.	Mr. S. Afroz Kazimi	Embaded System	8
6.	Miss. Neha Chauhan	VLSI & Microeletronics	4
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	10
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	5
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	1
10.	Mr. Deepak Kumar	Process Control	7

For Department Use Only:

Faculty/ Guide Allocated: Mr. S. Afroz Kazimi

Sd/-

Project Coordinator



Director
 Netaji Subhas Institute of Technology
 Amhara, Bihta, Patna, PIN-801106

Head of Department

Department of Electronics & Communication Engineering
 Netaji Subhas Institute of Technology

Principal

Netaji Subhas Institute of Technology
 Amhara, Bihta, Patna

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 10

Faculty/Guide preference with their Area of Specialization:-

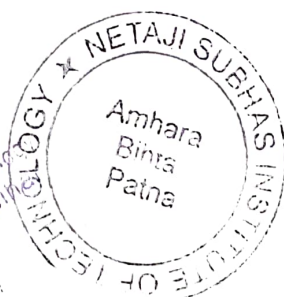
Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
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2.	Mr. Abhishek Panda	Image processing	10
3.	Md. (Mr.) Hasmat Ali	VLSI & Control System	1
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	2
5.	Mr. S. Afroz Kazimi	Embaded System	9
6.	Miss. Neha Chauhan	VLSI & Microelectronics	8
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	7
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VISI Design	3
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	5
10.	Mr. Deepak Kumar	Process Control	6

For Department Use Only:

Faculty/ Guide Allocated:..... Miss. Pallavi Singh

Sd/- 24/08/18
Project Coordinator

[Signature]
Director
 Netaji Subhas Institute of Technology
 Amhara, Bihta, Patna, Bihar
 PIN-801106



Head of Department
 Department of Electronics & Communication Engineering
 Netaji Subhas Institute of Technology

[Signature]
Principal

Netaji Subhas Institute of Technology, Bihta, Patna
Department of Electronics & Communication Engineering

Project Group No.: 11

Faculty/Guide preference with their Area of Specialization:-

Sl.No.	Name of Faculty/Guide	Area of Specialization	Preferences (In Numerics)
1.	Dr. (Mrs.) Reema Dhar	Signal Processing/ Image processing	
2.	Mr. Abhishek Panda	Image processing	
3.	Mr. (Mr.) Hasmat Ali	VLSI & Control System	
4.	Mr. Kundan Kumar Singh	Biomedical Instrumentation	
5.	Mr. S. Afroz Kazimi	Embaded System	
6.	Miss. Neha Chauhan	VLSI & Microelectronics	
7.	Miss. Pallavi Singh	Instrumentation & Control / Signal Processing	
8.	Mr. Gautam Kumar	Analog Signal Processing / analog Circuit / VLSI Design	
9.	Mr. Rajani Ranjan	RF & Microwave Engineering / Antenna Design	
10.	Mr. Deepak Kumar	Process Control	

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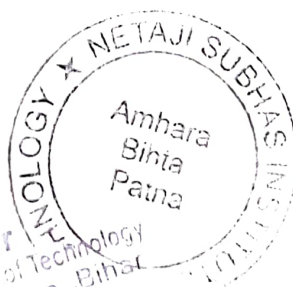
Faculty/ Guide Allocated:.....*Mr. Afroz Kazimi*.....

P. S. 24/09/19
Sd/-

Project Coordinator

S. S. 24/09/19

Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106



Head of Department
Department of Electronics & Communication Engineering
Netaji Subhas Institute of Technology

Principal
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna

ROBOTIC HAND WITH WIRELESS CONTROL

Project synopsis of

Minor project

BACHELOR OF TECHNOLOGY

ELECTRONICS AND COMMUNICATION ENGINEERING



Under the guidance of

Mr. Md. Hashmat Ali

Assistant Professor

SUBMITTED BY

Aman Kumar - 152025

Aryan Singh - 152037

Kumar Utkarsh- 152028

[Signature]
30/08/18

[Signature]
30/08/18

August 2018

NETAJI SUBHASH INSTITUTE OF TECHNOLOGY

BIHTA, PATNA

[Signature]
Head of Department
Department of Electronics & Communication Engineering
Netaji Subhas Institute of Technology

[Signature]
Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801103

ABSTRACT

In today's world, there is an increasing need to create artificial arms for different inhuman situations where human interaction is difficult or impossible. They may involve ranging from taking readings from an active volcano to diffusing a bomb. Here, it is proposed to build a robotic arm controlled by natural human arm movements.

The development of this arm is based on Arduino board, nRF24Lo1, flex sensors along with servo motors.

Finally, the prototype of the arm may be expected to overcome problems such as placing or picking hazardous objects or non-hazardous objects that are far away from the user.

INTRODUCTION

Nowadays, robots are increasingly being integrated into working tasks to replace humans especially to perform the repetitive task. In general, robotics can be divided into two areas, industrial and service robotics. International Federation of Robotics (IFR) defines a service robot as a robot which operates semi- or fully autonomously to perform services useful to the well-being of humans and equipment, excluding manufacturing operations. These robots are currently used in many fields of applications including office, military tasks, hospital operations, dangerous environment and agriculture. Besides, it might be difficult or dangerous for humans to do some specific tasks like picking up explosive chemicals, defusing bombs or in worst case scenario to pick and place the bomb somewhere for containment and for repeated pick and place action in industries. Therefore a robot can be replaced human to do work.

ROBOTIC ARM DEFINITION

A robotic arm is a robot manipulator, usually programmable, with similar functions to a human arm. The links of such a manipulator are connected by joints allowing either rotational motion (such as in an articulated robot) or translational (linear) displacement. The links of the manipulator can be considered to form a kinematic chain. The business end of the kinematic chain of the manipulator is called the end effectors and it is analogous to the human hand. The end effectors can be designed to perform any desired task such as welding, gripping, spinning etc., depending on the application. The robot arms can be autonomous or controlled manually and can be used to perform a variety of tasks with great accuracy. The robotic arm can be fixed or mobile (i.e. wheeled) and can be designed for industrial or home applications.

This synopsis deals with a robotic arm whose objective is to imitate the movements of a human arm using flex sensors as sensors for the data acquisition of the natural arm movements. This method of control allows greater flexibility in controlling the robotic arm rather than using a controller where each actuator is controlled separately.



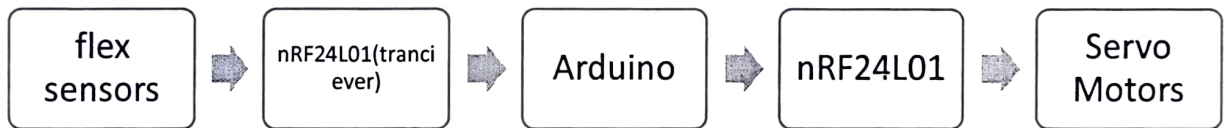
OBJECTIVE

The objective of this project is provide an alternate method to the people who are suffering from one side paralysis to control his other hand with his/her natural Arm. It will be also useful in some difficult task which human hand cannot perform like for handling volatile substance, nuclear weapon etc.

METHODOLOGY

The method employs designing and constructing the robotic arm based on operational characteristics of Arduino board, Transceiver, servomotors and programming of Arduino.

BLOCK DIAGRAM



HARDWARE REQUIRED

- Arduino Board
- nRF24L01
- nRF24L01 Adapter
- Flex Sensor
- Servo Motor
- Steel Coin Spring
- Glove
- F to F Jumper
- M to M Jumper
- Breadboard
- Foam Board or similar
- Battery
- Nylon Strings

S. Singh

- Hot Glue Gun
- Cable Ties

ADVANTAGE

These industrial robots can be used for assistance in 3D's

- Dull Work
- Dangerous Work
- Dirty Work

DISADVANTAGE

Although these are not cons for robotic arm itself, it is more of a user point of view,

- Complexity of the mechanism
- Not easy forward & inverse kinematics
- Debugging the program of the micro-controller and calibration of motors for sophisticated actions.

APPLICATION

Robotic Arm is widely used in manufacturing industry as a part of automation system.

Typical use of robotic arm includes welding, painting etc. It can be also used in medical area as the artificial arm for the patients with some modification. The Robotic Arm which is proposed here is fully controlled with Arduino and servo motors.

The project is very useful in gaining new experience and knowledge on robot Arm fabrication and programming.

REFERENCE

<http://mertarduinotutorial.blogspot.com/2017/03/arduino-project-tutorial-18-make-low.html>



Head of Department
Department of Electronics & Communication
Sri Sri Sathya Sai Institute of Higher Learning

HAND GESTURE CONTROLLED ROBBO CAR

PROJECT SYNOPSIS

OF MINOR PROJECT

BACHELOR OF TECHNOLOGY

ELECTRONICS AND COMMUNICATION ENGINEERING



Under the Guidance of

MR. RAJANI RANJAN
ASSISTANT PROFESSOR, H.O.D

SUBMITTED BY:
MANSI RANI (152009)
ASTHA KUMARI (152022)
ANJALI KUMARI (152034)

AUGUST 2018

NETAJI SUBHAS INSTITUTE OF TECHNOLOGY,
BIHTA, PATNA

[Signature]
Head of Department
Department of Electronics and Communication Engineering
Netaji Subhas Institute of Technology

[Signature]

[Signature]
01/08/18

INTRODUCTION:

In this project, we will design a simple Hand Gesture Controlled Robot car using Arduino. This Hand Gesture Controlled Robot car will be based on Arduino, RF Transmitter-Receiver Pair and Motor Driver. Even though the title says it as a Hand Gestured Controlled Robot, technically this robot will be controlled by the tilt of the hand. Instead of using a remote control with buttons or a joystick, the gestures of the hand will be used to control the motion of the robot. The project is based on wireless communication, where the data from the hand gestures will be transmitted to the robot over RF link (RF Transmitter – Receiver pair).

Gesture Controlled Robot is divided into two sections:

- Transmitter part
- Receiver part

In transmitter part an accelerometer and a RF transmitter unit is going to be used. As accelerometer gives an analog output so here it is needed to convert this analog data into digital. For this purpose we will use 4 channel comparator circuit in place of any ADC. By setting reference voltage we can get a digital signal and then we will apply this signal to HT12E encoder to encode data or to convert it into serial form and then send this data by using RF transmitter into the environment.

At the receiver end we will use RF receiver to receive data and then apply it to HT12D decoder. This decoder IC will convert received serial data to parallel and then it should be read by using Arduino. According to received data we can drive robot by using two DC motor in forward, reverse, left, right and stop direction.

STATEMENT ABOUT THE PROBLEM:

While making this project, we may face certain problems as-

- Due to any programming errors, the robot car will not run.
- There may be a case that transmitter is transmitting properly but, receiver is not getting the signals.
- While interfacing transmitter, receiver and accelerometer with Arduino
- Any connection problem like loose connection or wrong connection will not let the robot function accordingly.



Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

WHY IS THE PARTICULAR TOPIC CHOSEN?

This particular topic is chosen by us to draw the attention of our youth who prefer mobile games more than physical games and activities. So our arduino based hand gesture controlled robot car help them to discover world outside their mobile phones. Since our project also requires less work as a the user just have to move their hand to control the robot car. So we will try to maintain range to certain limit such that the user have to follow the robot car and ultimately they did some physical work. Secondly, we believe this technology can be largely used in security and bio medical fields.

METHODOLOGY:

A **gesture controlled robot car** will be controlled by using hand in place of any other method like buttons or joystick. Here one only needs to move hand to control the robot. A transmitting device will be used in our hand which contains RF Transmitter and accelerometer. This will transmit command to robot so that it can do the required task like moving forward, reverse, turning left, turning right and stop. All these tasks will be performed by using hand gesture.

- ASSEMBLING ROBBO CAR: The components are assembled to make a robot car which will be programmed further for making it hand gesture controlled.
- DETERMINING ROBBO CAR'S DIRECTION: The motor rotates when the inputs supplied are opposite. If both inputs are same then motor does not rotate. Different combinations will be tried to get desired direction of robot car.
- INTERFACING RF TRANSMITTER WITH AURDINO: The RF transmitter will be now interfaced with arduino so as we move hand, it will send signal to robot car for it's movement.
- INTERFACING RECEIVER WITH AURDINO: The next step is to interface receiver and arduino so that with the help of arduino programming, the receiver part will receive transmitted signals.
- RUN THE ROBBO CAR BY HAND GESTURES: As our robot car is ready now, we can run it or move it by just the tilt of hand.


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Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

HARDWARE USED:

The Hardware used over here is Arduino. Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so, we use the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing.

Arduino has been used in thousands of different projects and applications. The Arduino software is easy-to-use for beginners, yet flexible enough for advanced users. It runs on Mac, Windows, and Linux.

SOFTWARE USED:

The Software used here will be Arduino software (IDE). And, the programming language used for this software is EMBEDDED C.

Embedded C is a set of language extensions for C programming language by the C standards committee to address commonality issues that exist between C extensions for different embedded systems. In 2008, the C Standards Committee extended the C language to address these issues by providing a common standard for all implementations to adhere to. It includes a number of features not available in normal C, such as fixed-point arithmetic, named address spaces and basic I/O hardware addressing.

Embedded C uses most of the syntax and semantics of standard C, e.g., main() function, variable definition, data type declaration, conditional statements (if, switch case), loops (while, for), functions, arrays and strings, structures and union, bit operations, macros, etc.

WORKING:

Gesture controlled robot moves according to hand movement as we place transmitter in our hand.

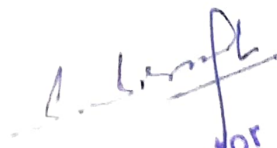
When we tilt hand in front side, robot start to moving forward and continues moving forward until next command is given.

When we tilt hand in backward side, robot change its state and start moving in backwards direction until other command is given.

When we tilt it in left side Robot get turn left till next command.

When we tilt hand in right side robot turned to right.

And for stopping robot we keeps hand in stable.


Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

ADVANTAGES:

- Arduino boards are inexpensive which will make the project very economical.
- Arduino software (IDE) is cross platform, i.e., it will run on Windows, Mac, and Linux. So, one can easily program through arduino.
- It will make a drastic change in the technologies used till date.
- It will use hand gestures, so it will remove the use of remote and so, batteries used in remote.


DISADVANTAGES:

Every advantages has got few hidden disadvantages.

Since it can play a vital role in security and bio-medical field so if it is being used by wrong hands, that will make the condition worsen.

APPLICATIONS:

- Wireless controlled robots are very useful in many applications like remote surveillance, military etc.
- This technology will be used in medical field for operations and surgeries done by hand gestures.
- Hand gesture controlled robot can be used by physically challenged in wheelchairs.
- Hand gesture controlled industrial grade robotic arms can be developed.
- It can also be used as firefighting robot to help people from the fire accident.
- Hand gesture controlled Robot vacuum cleaners will help in cleaning our home.
- It has other applications in automobiles, construction, etc.



Director
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

Head of Department
Netaji Subhas Institute of Technology
Amhara, Bihta, Patna, Bihar
PIN-801106

Mansi Rani
Angeli Kumar