KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

Indian Institute of Science campus, Bengaluru

Telephone: 080 -23600978, 23341652 || Email: spp@kscst.org.in Website: www.kscst.iisc.ernet.in/spp.html or www.kscst.org.in/spp.html

FORMAT FOR STUDENT PROJECT PROPOSAL FOR THE 46th SERIES OF STUDENT PROJECT PROGRAMME

1.	**Name of the College:** **GSSS Institute of Engineering and Technology for Women, Mysore.**
2.	**Project Title:** **SPEED CONTROL OF BLDC MOTOR USING PID CONTROLLER**
3.	**Branch:** **Electrical & Electronics Engineering**
4.	**Theme (as per KSCST poster):** **(The project proposals shall mandatorily be from one of the broad themes / areas. Visit website www.kscst.org.in/spp.html)** **Stream 6**
5.	**Name(s) of project guide(s):** **1. Name: Dr.Raghavendraprasad Deshpande** **Email id: deshpande@gsss.edu.in** **Contact No: 9538647166**

6.	**Name of Team Members (Strictly not more than four students in a batch):**

1. Name: ARCHANA.R
USN No: 4GW19EE003
Email id: archanashetty037@gmail.com
Mobile No: 9019478926

2. Name: BINDUSHREE.R
USN No: 4GW19EE006
Email id: bindushreer815@gmail.com
Mobile No: 8073563527

3.Name: POOJASHARMA
USN No: 4GW19EE025
Email id: nirisharma15@gmail.com
Mobile No: 9035043695

4.Name: PRIYADARSHINI.R
USN No: 4GW19EE029
Email id: darshinipriya161@gmail.com
Mobile No: 9353786132

2.	**Team Leader of the Project:**

Name: ARCHANA.R
USN No: 4GW19EE003
Email id: archanashetty037@gmail.com
Mobile No: 9019478926

3.	**Processing Fee Details (Through Online Payment only):** **(processing fee of Rs. 1000/-)** **Please furnish the payment made details provided in the last page of this proposal.** **UPI No: 000394063218** **Date: 31/01/2023** **Bank Name: CANARA BANK**
4.	**Date of commencement of the Project:** **05/10/2022**

5.	**Probable date of completion of the project:** **05/05/2022**
6.	**Scope / Objectives of the project:** The objectives are: ➢ To develop low cost PID controller for BLDC motor speed control. ➢ Performance validation of PID based BLDC motor with improvement in settling time and rise time.

7. **Methodology:**

The Brain of the system is Arduino uno, a 12v BLDC motor is connected to electronic speed controller. Arduino sends signal to electronic speed controller to increase or decrease speed of the BLDC motor.

A potentiometer is used to set the speed of BLDC motor which is connected to Arduino .

A IR rotary encoder measures the speed of motor and sends it to Arduino. If the speed of motor is greater than set speed then Arduino decreases the speed of motor and if the motor speed is lesser than that of set speed then the motor speed will be increased by Arduino. Increasing and decreasing of motor speed is calculated using PID (**proportional–integral–derivative**) and the formula for PID is

$$u(t) = K_p e(t) + K_i \int_0^t e(\tau)d\tau + K_d \frac{d}{dt} e(t)$$

Where ,

e(t) = Error (difference from set value to actual value)

Example: set value is 200 rpm and motor speed is 150 rpm then error will be 50 rpm

Kp = proportional constant

Example: set value is 200 rpm and motor speed is

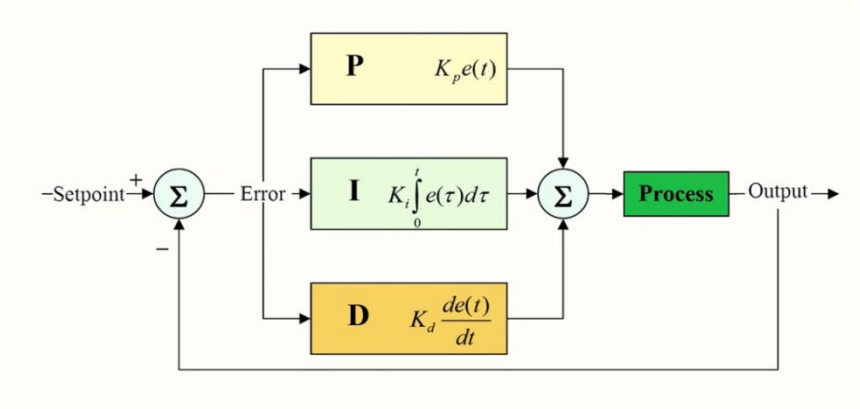
150 rpm then error will be 50 rpm

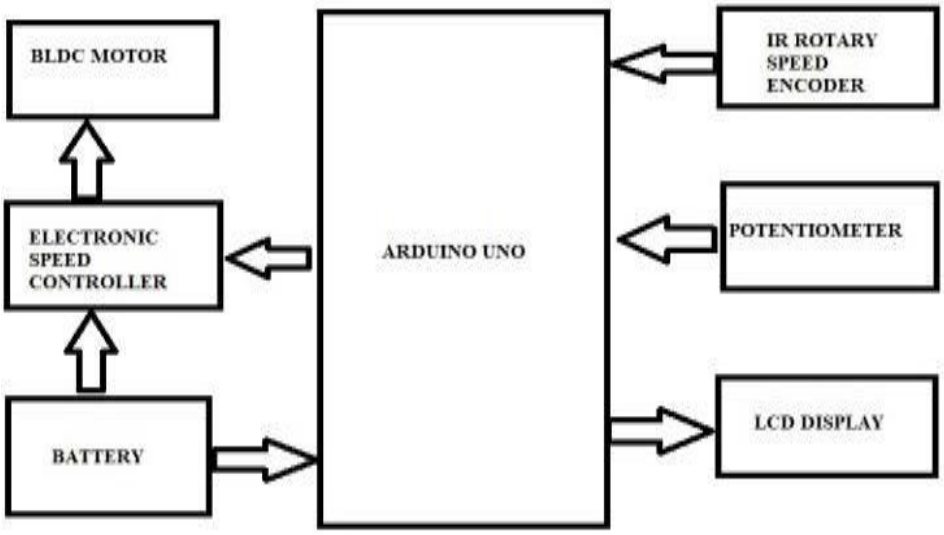
Ki = integral constant

Kd = differential constant

All the parameters like speed will be displayed on LCD.

PID CONTROLLER





8. **Expected Outcome of the project:**

On successful implementation of our project we will be able to control the speed of BLDC motors accurately with the use of PID technology. The accurate control of speed can be used in various medical , automobile industries where accuracy is more important. This will also eliminate condition where speed of motor constantly changes with the load on it.

9. **Is the project proposed relevant to the Industry / Society or Institution?**

Yes / No:

No

If Yes, please provide details of the Industry / institution and contact details:

10. **Can the product or process developed in the project be taken up for filing a Patent?**

Yes / No:

No

Prior Art search done?

Yes/No:

No

11. Budget details (break-up details should be given):

Note: KSCST will provide nominal grant support for carrying out the project by students if selected by the project selection committee.

Budget	Amount
a. Component cost /Consumables	4500
b. Labor (Describe)	Nill
c. Travel (Describe)	2000
d. Miscellaneous(Please specify)	1000
Total	11300

12. Any other technical details (Please specify):

Hardware requirements

- BLDC Motor
- Battery
- Arduino Uno
- IR Rotary Speed
- ESC (Electrical speed Controller)

Software requirements

- CODE EDITOR:ARDIUNO IDE
- LANGUAGE:C++

APPLICATION

- The accurate control of speed can be used in various medical .
- Automobile industries where accuracy is more important.

13. SPP Coordinator (Identified by the college):

Note: To be identified by the principal of the institution. The project proposals must be submitted to KSCST through SPP coordinator designated by the Principal.

Name: Mr. RAJASHEKAR M B
Email id: rajashekar@gsss.edu.in
Contact No: 9620268281

1. **Name of the Project Guide:**
   Dr.RAGHAVENDRAPRASAD DESHPANDE

Email id: deshpande@gsss.edu.in

Contact No: 9538647166

Name of the HOD:
Dr. G SREERAMULU MAHESH

Email id: hodeee@gsss.edu.in

Contact No: 9980147498

DECLARATION

(From Project Students)

(To scan this page and enclose in the project proposal)

We, the project team hereby declare that the details enclosed in the project proposal (Title of the Project: Speed control of BLDC motor using PID controller: Electrical & Electronics Engineering, College: GSSSIETW Mysore are true and correct to the best of our knowledge and belief and we undertake to inform KSCST of any changes therein in the project title, students name will be intimated immediately through project guide. In case any of the above information is found to be false or untrue or misleading, we are aware that we may be held liable for it. We hereby authorize sharing of the project information with this project proposal with the Karnataka State Council for Science and Technology, Bengaluru.

We are aware that the project team must exhibit / demonstrate the project in the nodal centre and interact regarding project with the experts and to exhibit the project in the State Level Seminar and Exhibition (if selected). If the student team fails to attend the evaluation in nodal centre or fails to attend the State Level Seminar and Exhibition, the supported project amount will be returned to KSCST.

We also hereby, enclose the endorsement form to KSCST, Bengaluru.

Name of the students with USN No. **Signature with date**

1. ARCHANA.R (4GW19EE003)
2. BINDUSHREE.R (4GW19EE006)
3. POOJASHARMA. (4GW19EE025)
4. PRIYADARSHINI.R (4GW19EE029)

Dr. Raghavendraprasad Deshpande
(Name & Signature of Project Guide with Seal)

Email id: deshpande@gsss.edu.in
Contact No: 9538647166

Dr. G Sreeramulu Mahesh
(Name & Signature of HOD with Seal)

Email id: hodeee@gsss.edu.in
Contact No: 9980147498

ENDORSEMENT

(From College, endorsement to be taken in the institution / Department Letter head)

(To scan this page and enclose in the project proposal)

This is to certify 1) Ms. Archana.R, 2) Ms. Bindushree.R, 3) Ms. Poojasharma 4) Ms. Priyadrashini.R are bonafide student(s) of Department of Electrical & Electronics Engineering, in the degree program of our institution. If the project proposal submitted by these students under the 46th series of Student Project Programme is selected by KSCST, we will provide the requisite laboratory / Computer / infrastructure support in our college / Institution. Further we also take necessary steps to see that the project team will exhibit / demonstrate their project in the nodal centre and in the State Level Seminar and Exhibition (if selected). If the student team fails to send the completed project report or fails to attend the evaluation in nodal center or fails to attend the State Level Seminar and Exhibition, the supported project amount will be returned to KSCST.

Dr. Raghavendraprasad Deshpande	**Dr. G Sreeramulu Mahesh**	**Dr. M Shivakumar**
(Name & Signature of Project Guide with Seal)	**(Signature of HOD with Seal)**	**(Signature of the Principal with Seal)**
Email id:	**Email id:**	**Email id:**
deshpande@gsss.edu.in	**hodeee@gsss.edu.in**	**principal@gsss.edu.in**
Contact No: 9538647166	**Contact No: 9980147498**	**Contact No: 98333406214**

DETAILS OF PROCESSING FEES MADE THROUGH NEFT / UPI PAYMENT

(**Note:** Include this page in the softcopy of the student project proposal. The student team shall furnish the details in the Google Form. It is informed to the students to 1) keep ready the softcopy of the project proposal and other documents and 2) Furnish the payment made details as processing fees and 3) update the details in the Google Form on the same day of payment made to KSCST by NEFT / UPI payment).

1. TITLE OF THE PROJECT	:	Speed control of BLDC motor using PID controller
2. NAME OF THE TEAM LEADER	:	Archana. R

3. EMAIL ID	:	archanashetty037@gmail.com
4. CONTACT MOBILE NO.	:	9019478926

PAYMENT MADE DETAILS

5. BANK REF. NO. / UTR NO. / UPI No. (12 digits)	:	000394063218
6. TRANSACTION ID	:	000394063218
7. NAME OF THE SENDER / ACCOUNT HOLDER and CONTACT NUMBER	:	Principal, GSSSIETW
8. NAME OF THE BANK	:	CANARA BANK
9. PROCESSING FEES	:	Rs. 1000/-
10. DATE OF PAYMENT MADE	:	31-01-2023
11. TIME	:	12:02:44
12. MODE OF PAYMENT MADE (NEFT / UPI, PLEASE SPECIFY)	:	Funds Transfer Debit – KARNATAKA STATE COUNCIL FOR SCIENCE: Cheque

(Name & Signature of the team leader) (Name & Signature of Project Guide or HOD with Seal)

KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

Indian Institute of Science campus, Bengaluru

46th SERIES OF STUDENT PROJECT PROGRAMME (SPP)

(Note: This page is for information about bank details of KSCST to the student team and college / institution and not to include this page in the project proposal softcopy)

BANK ACCOUNT DETAILS OF KSCST

Name and address of the Institution	Karnataka State Council for Science and Technology, IISc Campus, Bangalore -560012

Account holder's name / Designation	Secretary, Karnataka State Council for Science and Technology
Bank Account No. & Name of the bank	Current A/C No. 0683201000024 Canara Bank, IISc Campus Branch, Bangalore-560012
IFSC Code	CNRB0000683
MICR Code	560015023
Bank Branch Address	Canara Bank, Indian Institute of Science, Bangalore-560012

BANK DETAILS

Name of the Agency	Karnataka State Council for Science and Technology IISc Campus, Bangalore - 560012
Account holder's name / Designation	Secretary , Karnataka State Council for Science and Technology
Bank Account No. & Name of the bank	Current A/C No. 0683201000024 Canara Bank IISc Campus Branch Bangalore-560012
IFSC Code	CNRB0000683
MICR Code	560015023
Bank Branch Address	Canara Bank Indian Institute of Science Bangalore-560012