KSCST

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

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

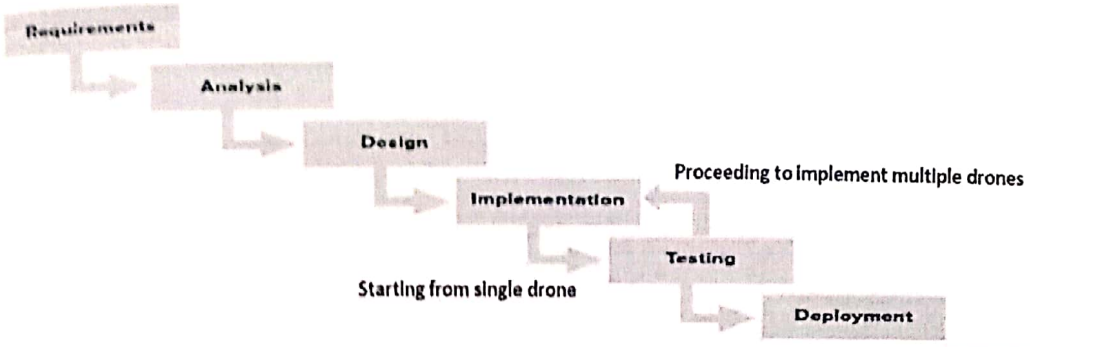
(Handwritten proposals will not be accepted, please fill all the details in this MS word file, insert images / diagrams wherever necessary. Convert to pdf file, get it approved from the project guide / head of the department and principal of your institution. Keep ready the scanned pdf file of 1) Declaration and Endorsement 2) details of processing fees made and fill-up the Google Form. Send the softcopy of the project proposal including the three scanned pages and send the proposal (All information in one pdf file) by email to spp@kscst.org.in

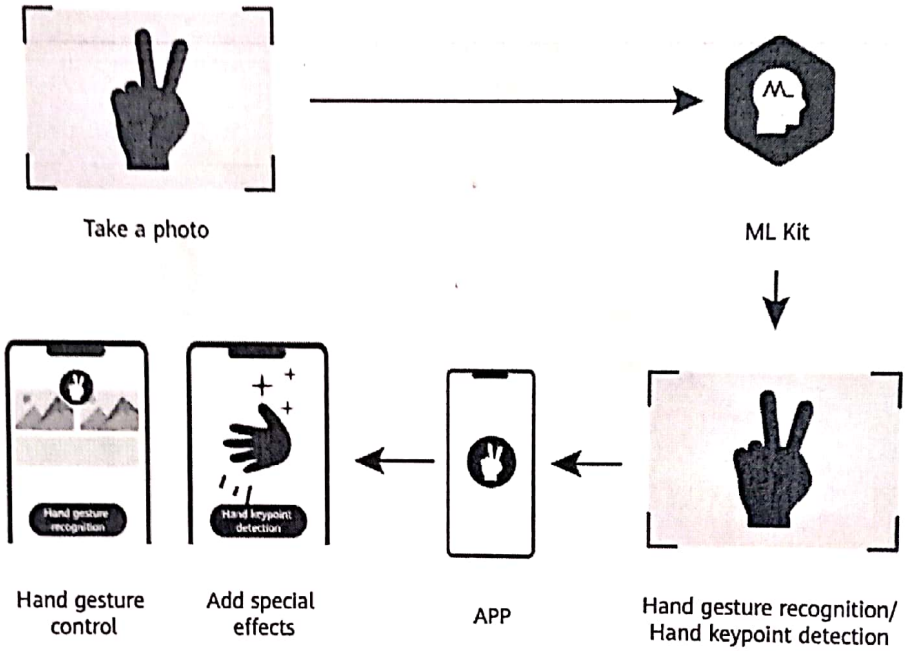
https://forms.gle/pMfzw4iKL7LNAojd8

1.	**Name of the College: A J Institute of Engineering and Technology**
2.	**Project Title: Gesture Controlled Swarm of Mini Aerial Vehicles for Agricultural Purpose**
3.	**Branch: Computer Science and Engineering**
4.	**Theme (as per KSCST poster): Automation or new concepts in agriculture (The project proposals shall mandatorily be from one of the broad themes / areas. Visit website www.kscst.org.in/spp.html)**
5.	**Name(s) of project guide(s):** **1. Name: Mr. Vijaykumar Dudhanikar** **Email id: vijaykumar.dudhanikar@ajiet.edu.in** **Contact No.:+91 9880129398**
6.	**Name of Team Members (Strictly not more than four students in a batch):** *(Type names in Capital Letters as provided in your college)* (Please paste the latest passport size photograph adjacent to your respective names) **Name: Suraj J** **USN No.: 4JK19CS055** **Email id: surajj27dec@gmail.com** **Mobile No: 8310870581** 

	Name: Thrupthi **USN No.: 4JK19CS056** **Email id: thrupthikundarkr@gmail.com** **Mobile No.: 9108875718**  **Name: Vidyakeerthi M** **USN No.: 4JK19CS058** **Email id: vkrkz121@gmail.com** **Mobile No.: 7975902246**  **Name: Yomith T Mendon** **USN No.: 4JK19CS062** **Email id: yomithmendon033@gmail.com** **Mobile No.: 9606116097** 
7.	**Team Leader of the Project:** **Name: Suraj J** **USN No.: 4JK19CS055** **Email id: surajj27dec@gmail.com** **Mobile No.: 8310870581**
8.	**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.** **Note:** (The student team shall furnish the details in the Google Form. It is informed to the students to 1) keep ready the project proposal and 2) make the payment made details for processing fees and 3) Enter the details in the Google Form on the same day of payment made to KSCST by NEFT / UPI payment).
9.	**Date of commencement of the Project:** 10/10/2022
10.	**Probable date of completion of the project:** 30/4/2023

11.	**Scope / Objectives of the project:** This project is the idea of fusing technologies to serve a greater purpose. Technologies such as machine learning, image processing and Artificial Intelligence is fused into a mini aerial vehicle or commonly known as mini drones for agricultural purpose to use for mapping, detecting damaged crops, surveillance, targeted crop cultivation and crop fertilization. The usage of drones in agricultural fields has been a practice as a means of safer, easier and cost effective mode. But single and big drones are used that have single remote pilot for each. The swarm of drones flying with particular formation is always functional and helpful since it, covers a large area in short span of time, while surveillance clears away all the blind spots that is not possible by a single drone, range and accuracy increases, collective data helps to provide accurate information about the crop health, amount of fertilizers to be used etc.. Thus these drones will be helpful in agricultural field by reducing worktime, increasing accuracy and also farmer friendly.
12.	**Methodology:** Controlling of drones using gesture is a complex task since it includes both hardware and software requirements in equal proportion. Starting from building the drones and configuring it with each other and to the receivers, configuring NANO boards to the scripts that will be used with both Arduino and python scripts, it is a complex and time-consuming procedure. Hence we have divided the work progress of the project in following ways as mentioned in the flow diagram (figure 3.1). 1. First the requirements for the projects are sorted that includes hardware equipments to be used for build and the scripts to be written for providing information about actions of each gesture. 2. In the analysis stage we will analyze the working of the drones, where we will set out various predictions for the movements of drone accordingly to the gestures this is done to get the accuracy in the testing stage. 3. In Design stage we will design the structure of drones in such a way that it looks compact and light in weight and start building it in implementation stage. 4. Once a single drone is constructed it is tested for the flight and response for the gestures. And once successful the process is repeated with building each drone up to 6 and then in final stage configuring them to work on single command and testing again for the predicted response. 5. On successful testing the final swarm is deployed and analyzed for any further upgrades required





Note: In case of fabrication work in the project, an engineering drawing with dimensions / detailed design should be attached to the proposal.

13. Expected Outcome of the project:

Completely synced and working group of drones (swarm) controlled by a single pilot gesture. Along with this achievement a demo of aerial mapping will be done accordingly to prove one of the applications. The gesture control will describe various maneuvers of the drones to provide accurate results.

14. **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:

(**Note:** Preference will be given to those projects relevant to the industry / institution. Hence be specific in giving detailed information). Is the industry extending support - technology / funds / use the final product, please specify.

15. **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:

Note: If your answer is "Yes", you may contact Patent Information Centre of KSCST. For more details, email: pic@kscst.org.in

16. **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) Materials / Consumables (electronic equipments : Arduino NANO, mpu's, receivers, NRF24 L01 ,etc..)	10000.00
b) Labor (building body parts of drone)	1000.00
c) Travel (Describe)	500.00
e) Miscellaneous (Drone frames and body)	3000.00
Total	14500.00

17. **Any other technical details (Please specify):**

Components required :

Arduino NANO, NRF24 L01, MPU 3060, I298 Driver Circuit, Batteries, Camera

18. **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: Dr. Sangeetha D M
Email id: sangeetha@ajiet.edu.in
Contact No.: 7795787676

Name of the Project Guide: Mr. Vijaykumar Dudhanikar
Email id: vijaykumar.dudhanikar@ajiet.edu.in
Contact No.: +91 9880129398

Name of the HOD: Dr. Antony P J
Email id: antonypjohn@ajiet.edu.in
Contact No.: +91 9741489242

H.O.D. - Computer Science & ...
A.J. INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mangaluru - 575006, D.K., Karnataka

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: **Gesture Controlled Swarm of Mini Aerial Vehicle for Agricultural Purpose**, Branch: **Computer Science and Engineering**, College: **A J Institute of Engineering and Technology, Mangaluru.**) 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, Bangaluru.

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.	Suraj J : 4JK19CS055	19/12/22
2.	Thrupthi : 4JK19CS056	19/12/22
3.	Vidyakeerthi M : 4JK19CS058	19/12/22
4.	Yomith T Mendon : 4JK19CS062	19/12/22

(Name & Signature of Project Guide with Seal)
Email id: vijaykumar.dudhanikar@ajiet.edu.in
Contact No.: +91 9880129398

(Name & Signature of HOD with Seal)
Email id: antonypjohn@ajiet.edu.in
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H.O.D. - Computer Science & Engineering
A.J. INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mangaluru - 575 006, D.K., Karnataka

A. J. Institute of Engineering and Technology
Mangaluru

Approved by AICTE New Delhi, Affiliated to VTU Belagavi & Recognised by Govt. of Karnataka

(A unit of Laxmi Memorial Education Trust (R))

NH-66, Kottara Chowki, Mangaluru - 575 006. Ph : +91 824 2455048, 2862202 Mob.: +91 9483026503. Fax : +91 824 2862205

email : ajenggcollege@gmail.com | website : www.ajiet.edu.in

ENDORSEMENT

This is to certify that 1) Mr. SURAJ J, 2) Ms. THRUPTHI 3) Mr. VIDYA KEERTHI M, 4) Mr. YOMITH T MENDON, are bonafide student(s) of Department of COMPUTER SCIENCE AND 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 Centre or fails to attend the State Level Seminar and Exhibition, the supported project amount will be returned to KSCST.

Mr. Vijaykumar Dudhanikar

Email id:
vijaykumar.dudhanikar@ajiet.edu.in
Contact No.: 9880129398

Dr. Antony P J

H.O.D. - Computer Science & Engineering
A.J.INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mangaluru - 57[illegible] D.K., Karnataka

Email id:
antonypjohn@ajiet.edu.in
Contact No.: 9741489242

Dr. Shantharama Rai. C

Principal
A.J. Institute of Engineering & Technolog
Mangaluru - 575 006

Email id:
ajenggcollege@gmail.com
Contact No.:0824-2862201

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	:	Gesture Controlled Swarm of Mini Aerial Vehicle for Agricultural Purpose
2. NAME OF THE TEAM LEADER	:	Suraj J
3. EMAIL ID	:	Surajj27dec@gmail.com
4. CONTACT MOBILE NO.	:	8310870581

PAYMENT MADE DETAILS

5. BANK REF. NO. / UTR NO. / UPI No. (12 digits)	:	235380583690
6. TRANSACTION ID	:	CICAgJChmOWkBw
7. NAME OF THE SENDER / ACCOUNT HOLDER and CONTACT NUMBER	:	Thrupthi
8. NAME OF THE BANK	:	Canara Bank
9. PROCESSING FEES	:	Rs. 1000/-
10. DATE OF PAYMENT MADE	:	19/12/2022
11. TIME	:	2:01 PM
12. MODE OF PAYMENT MADE (NEFT / UPI, PLEASE SPECIFY)	:	UPI

Suraj J
19/12/22

(Name & Signature of the team leader)

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

H.O.D. - Computer Science & Engineering
A.J.INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mangaluru - 575 006, D.K., Karnataka

T

To Thrupthi

₹1,000

Completed • December 19, 2022 at 2:01 PM

Canara Bank XX0073

UPI transaction ID
235380583690

To
•••• 0024

From: THRUPTHI (Canara Bank)
thrupthikundarkr-1@okicici

Google transaction ID
CICAgJChmOWkBw

Having issues?

Split with friends

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