SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)

Dindigul – Palani Highway, Dindigul 624 002

DEPARTMENT OF MECHANICAL ENGINEERING

STUDENT PROJECTS SCHEME
2018-2019

REPORT

TAMILNADU STATE COUNCIL FO R SCIENCE AND TECHNOLOGY

DOTE Campus, Chennai-600025

Name of the guide and address

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STUDENT PROJECT SCHEME 2018-2019
UTILISATION CERTIFICATE

(TWO COPIES)

1. Name of the guide and address: **Mr. I. Vimal Kannan,**
Assistant Professor /Mechanical,
SSM Institute of Engineering and Technology,
Dindigul-Palani Highway, Dindigul - 624 002.

2. Name of the student(s): **SRINATH.R**

3. Title of the project: **Reducing Space Debris by returning satellites to the earth probably before deterioration of satellites.**

4. Project code : EME -030

It is certified that a sum of **Rs.7500/-** (Rupees Seven thousand five hundred) Sanctioned by the council for carrying out above mentioned student project has been utilized for the purpose for which it was sanctioned and sum of Rs. **0 /-**.....-- .....remaining unutilized is refunded.

Signature of the guide

Signature of the HOD

Signature of the
REGISTRAR/PRINCIPAL/DEAN
With SEAL

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தமிழ்நாடு அறிவியல் தொழில்நுட்ப மாநில மன்றம்
TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
(Established by Government of Tamilnadu)
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Dr.R.SRINIVASAN, M.Sc., Ph.D., F.I.C.S., M.A.C.S.(USA).,
Member Secretary

Lr.No.TNSCST/SPS/AR/2018-2019 18.02.2019

To
The Principal
SSM Institute of Engineering and Technology
Sindalagundu
Dindigul - 624 002

Sir/Madam,

Sub: TNSCST – Student Project Scheme – 2018-2019 – approval intimation–grant release- reg.

With respect to the above scheme, the list of projects approved by the State Council is enclosed along with terms and conditions. Kindly read and ensure adherence to the terms and conditions such as submission of UC and seminar paper in time.

Kindly find enclosed here with the cheque for the approved grant and disburse the grant to the concerned students through the guides at the earliest.

Kindly send the utilisation certificate (format enclosed) and seminar paper (ref.T&C-no.5&6) on completion of the project.

Thanking you,

Yours faithfully,

18.2.19

Member Secretary

Encl: a) Terms & Conditions (T&C)
b) Format of Utilisation Certificate (UC)
c) Cheque for Rs.15000/- No. 795206 dt.18.02.2019

Copy to: Individual Guides

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	Mr.M.Premkumar Assistant Professor Dept. of ECE SSM Institute of Engineering and Technology Sindalagundu Dindigul - 624 002	Monitoring and tracking wildlife injury in palani hills wildlife sanctuary using wireless sensor networks	Bhuvaneswari.A	EEE-100	The Principal SSM Institute of Engineering and Technology Sindalagundu Dindigul - 624 002	7500/-
	I.Vimalkannan Assistant Professor Dept. of Mechanical Engineering SSM Institute of Engineering and Technology Dindigul-624002	Reducing Space Debris by returnning satellites to the earth probably before deterioration of satellite	R Srinath	EME-030	The Principal SSM Institute of Engineering and Technology Dindigul-624002	7500/-

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293	Dr.S.Indran Head Associate Professor Mechanical Engineering Rohini College of Engineering and Technology Variyoor - 629 401	Mechanical properties of laminated natural fiber woven fabric composites for below- knee prosthesis socket application	Murukesh.M Anbalagan Ragul Privin Raj.D Arul Gold Christian	EME-025	7500/-
294	Dr.K.Arumugam Professor Mechanical Engineering Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College Chennai - 600 062	Automatic Fire extinguisher	Naveenkumar.M	EME-026	7500/-
295	A G Karthikeyan Assistant Professor Dept. Of Mechanical Engineering Dr.N.G.P. Institute of Technology Coimbatore-641048	Robotic Assisted Blood Drawing Machine using Raspberry-pi	Arun Kumar G Bharath Raj B Elayavendhan M	EME-027	7500/-
296	P Jagadeeswaran Assistant Professor Dept. Of Mechanical Engg. Sengunthar Engineering College Thiruchengode-637205	The Bore Well Trapped People Resuce System	S Ganesh Ranjith P Ranjith Kumar R Sampath	EME-028	7500/-
297	S Prabhu Asst Prof Dept. of Mechanical Engg., RVS College of Engineering and Technology Coimbatore-641402	Electricity Generation in Highway through Combined Darrieus and Savonious wind Turbine	P Bala S Arun Murugan D Madhan	EME-029	7500/-
298	I Vimalkannan Asst Prof Dept. of Mechanical Engg., SSM Institute of Engineering and Technology Dindigul-624002	Reducing Space Debris by returnning satellites to the earth probably before deterioration of satellite	R Srinath	EME-030	7500/-
299	N Bhuvanesh N Asst Prof Dept. of Mechanical Engineering Bannari Amman Institute of Technology Sthyamangalam-638401	Harvesting of Electricity from Handloom Weaving Machine coupled with power generator Dynamo	Mukesh R Harish VNN Vivek G	EME-031	7500/-
300	K Ravikumar Asst Prof Dept. Of Mechanical Engineering PSR Engineering College Sivakasi-626140	Water Tank Cleaning Machine	N Rajkumar S Riswan Arif Hameed N Vairamuthu	EME-032	7500/-
301	Dr.K.Vijaya Raja KCG College of Technology Karapakkam Chennai- 600 097	Dual motor micro wind turbine	M.Keerthika	EME-033	7500/-
302	S Thirugnanam Asst Prof Dept. of Mechanical Engg., Valliammai Engineering College Kattankulathur-603203	Manufacture of Aluminium metal matrix compoite by stir casting technique	M Surya S Sanjai U Srivathsa M Srinivas	EME-034	7500/-

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ANNEXURE I

Reducing Space Debris by Returning Satellites to The Earth Probably Before Deterioration of Satellites

Reducing space debris is a significant concern due to the increasing number of satellites and other objects in Earth's orbit. While returning satellites to Earth before their natural deterioration is one approach, it poses several challenges and may not be the most practical solution in all cases. Here are some considerations:

Fuel Requirements: Returning a satellite to Earth requires additional fuel. Carrying extra fuel increases the mass of the satellite at launch, which in turn requires more fuel for the initial launch. This creates a trade-off between the amount of fuel needed and the useful payload capacity.

Technical Challenges: Developing the technology to safely deorbit and return a satellite is complex. It involves designing systems to withstand the heat generated during re-entry, as well as precise navigation and control to ensure a controlled descent.

Costs: Implementing systems to return satellites can be expensive. Launching and operating spacecraft capable of safely bringing satellites back to Earth may outweigh the benefits, especially for smaller or less valuable satellites.

Logistical Issues: Coordinating the return of multiple satellites can be challenging. The logistical aspects of managing the deorbiting process for numerous satellites would require careful planning and international cooperation.

Impact on Satellite Lifespan: Intentionally deorbiting satellites prematurely may reduce their operational lifespan. Satellites are designed with a specific mission duration in mind, and bringing them back earlier could limit their ability to fulfill their objectives.

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Instead of returning satellites to Earth, there are alternative strategies for mitigating space debris:

Deorbiting Systems: Designing satellites with built-in propulsion systems or attaching deorbiting modules can help them move to lower orbits or re-enter the Earth's atmosphere at the end of their operational life.

End-of-Life Disposal Guidelines: Implementing international guidelines for responsible satellite disposal can encourage satellite operators to plan for end-of-life scenarios and minimize the creation of new space debris.

Active Debris Removal (ADR): Developing technologies for actively removing defunct satellites and large debris objects from orbit is another approach. Concepts include using robotic arms, nets, or other methods to capture and deorbit space debris.

Space Traffic Management: Improving coordination and communication among satellite operators can help prevent collisions and reduce the creation of new debris. This involves sharing orbital data and implementing collision avoidance maneuvers when necessary.

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