



NADAR SARASWATHI COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Vadapudupatti, Annanji (po), Theni - 625 531,
Tamilnadu, India.



3.1.1 Grants received from Government and non-governmental agencies for research projects / endowments in the institution during the last five years

Academic Year	: 2022-2023
Name of the Project Application	: PLASTIC EXTRUDER MACHINE
Name of the Principal Investigator	: Dr.C.Mathalai Sundaram, Principal and Professor, Department of Mechanical Engineering, Nadar Saraswathi College of Engineering and Technology, Vadapudupatti, Theni.
Name of the Co-Principal Investigator	: Dr.B.Radha Krishnan Head of the Department, Department of Mechanical Engineering, Nadar Saraswathi College of Engineering and Technology, Vadapudupatti, Theni.
Name of the Funding Agency	: Theni Aiswaryam Polyplastic Industries Pvt., Ltd, Theni
Amount Sanctioned	: Rs. 3,50,000 /-
Duration of the project	: Seven Months



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3.1.1 Grants received from Government and non-governmental agencies for research projects / endowments in the institution during the last five years

Academic Year : 2022-2023

Name of the Project Application : PLASTIC EXTRUDER MACHINE

Name of the Principal Investigator : **Dr.C.Mathalai Sundaram,**
Principal and Professor,
Department of Mechanical Engineering,
Nadar Saraswathi College of Engineering and
Technology, Vadapudupatti, Theni.

Name of the Co-Principal Investigator : **Dr.B.Radha Krishnan**
Head of the Department,
Department of Mechanical Engineering,
Nadar Saraswathi College of Engineering and
Technology, Vadapudupatti, Theni.

Name of the Funding Agency : Theni Aiswaryam Polyplastic Industries Pvt.,
Ltd, Theni

Amount Sanctioned : Rs. 3,50,000 /-

Duration of the project : Seven Months



Mari
Dr. C. MATHALAI SUNDRAM, M.E., M.B.A., Ph.D.,
Principal
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Vadapudupatti, Theni-625 531.



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Vadapudupatti, Annanji (po), Theni - 625 531,
Tamilnadu, India.

Date: 23/09/2022

To

Theni Aiswaryam Polyplastic Industries Pvt., Ltd,
175-Q, Annai Velankani Mill, Rathinam Nagar,
Unjampatti.
Theni – 625 531.

Dear Sir,

Sub: *Research project work – Joint Venture – reg.*

The Nadar Saraswathi College of Engineering and Technology (NSCET), known for its updated infrastructure and facilities, was established in 2010. It is situated in Vadaputhupatti, Annanji, in Theni. Nadar Saraswathi College of Engineering and Technology (NSCET) focuses on providing a high-quality learning and teaching atmosphere coated with layers of discipline and structured behavior. We offer courses in civil engineering, computer science and engineering, electronics and communication engineering, electrical and electronics engineering, mechanical engineering, and PG courses in manufacturing and structural engineering. We also offer Ph.D. programs in mechanical engineering. Our college is also involved in Fostering research and Consulting work in Engineering Competence. Our Mechanical Engineering faculty members also have expertise in their core area of Mechanical Engineering. Therefore, I am expressing our interest in establishing research work and joint venture collaboration with Theni Aiswaryam Polyplastic Industries Pvt., Ltd.

We look forward to working with a new research venture from Theni Aiswaryam Polyplastic Industries Pvt., Ltd.

Thanking you,



Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.

Principal

Nadar Saraswathi College of
Engineering and Technology
Vadapudupatti, Theni-625 531.

Yours sincerely,

Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.

Principal

Nadar Saraswathi College of
Engineering and Technology
Vadapudupatti, Theni-625 531..

Theni**AISWARYAM***Polyplastic Industries*

Email: ashokyamini11@gmail.com

Date: 26/09/2022

To**The Principal,**

Nadar Saraswathi College of Engineering and Technology,
Annanji (P.O), Vadapudupatti, Theni-625531.

Dear Sir,Subject: *Research Project Fund*- reg.

Ref:Lett. From NSCET dated on 23/09/2022.

I acknowledge receipt of your letter requesting the research study. At Theni Aiswaryam Polyplastic Industries Pvt Ltd, we possess expertise in manufacturing plastic products specifically designed for mechanical engineering applications. We kindly request your college's collaboration in researching plastic extruder machines. Considering this, we are pleased to fulfil your request and invite you to submit a study project. We expect that the research endeavour will effectively enhance the manufacturing of mechanical components. Hence, we kindly request that you provide a comprehensive project proposal encompassing a detailed budget.

Thank you

Your Faithfully,

Man —
Dr. C. MATHALAI SUNDARAM, M.E., M.B.A, Ph.D.
Principal
Nadar Saraswathi College of Engineering and Technology
Vadapudupatti, Theni-625 531.

GSTIN:33DNPPA8411L1ZV

THENI AISWARYAM
POLY PLASTICS INDUSTRIES
175Q, RATHINAM NAGAR,
UNJAMPATTI,
THENI-625 531,



175 Q Annai Velankani Mill, Rathinam Nagar, Unjampatti, Theni - 625 531.



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
 Vadapudupatti, Annanji (po), Theni - 625 531,
 Tamilnadu, India.

Date: 28/09/2022

To

Theni Aiswaryam Polyplastic Industries Pvt Ltd,
 15/1B, Sales Society Street,
 Theni - 625 531.
 Tamil Nadu.

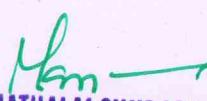
Dear Sir,

Subject: Research project work- acknowledging your letter dated 26/09/2022 - Submission of the Project Proposal titled "Plastic Extruder Machine" - Reg.

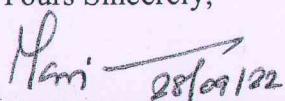
Ref: Your Reference letter Dated 26/09/2022

I am writing to extend my heartfelt gratitude on behalf of the faculty and students of Nadar Saraswathi College of Engineering and Technology for granting us the opportunity to submit our project proposal to Theni Aiswaryam Polyplastic Industries Pvt Ltd. We are truly honored and grateful for the chance to be considered for collaboration on this project. We understand the importance of your company to the industry and recognize the value of working with a reputed organization like Theni Aiswaryam Polyplastic Industries Pvt Ltd. Your support in allowing us to present our ideas and solutions is encouraging and motivating for our academic community. Hence, I am submitting a research proposal titled "Plastic Extruder Machine" for your kind perusal and further action. And for all the necessary budget as well as the allocation of team members for the proposed project, kindly receive the same and do what is needed.




Dr. C. MATHALAI SUNDARAM, M.E.,M.B.A.,Ph.D.,
Principal
**Nadar Saraswathi College of
Engineering and Technology**
Vadapudupatti, Theni-625 531.

Yours Sincerely,


Dr. C. MATHALAI SUNDARAM, M.E.,M.B.A.,Ph.D.,
Principal
**Nadar Saraswathi College of
Engineering and Technology**
Vadapudupatti, Theni-625 531.



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Vadapudupatti, Annanji (po), Theni - 625 531,
Tamilnadu, India.

Date: 28/09/2022

To

Theni Aiswaryam Polyplastic Industries Pvt Ltd,
15/1B, Sales Society Street,
Theni – 625 531.

Dear Sir,

Sub: Submission of Project proposal with budget and allocation of Team-reg.

With reference to the above, I am submitting a project proposal attached with the budget and assigning the team for the forthcoming research project. Kindly receive it and do the needful.

Yours Sincerely,

Hari ——————
28/09/22

Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.,

Principal

Nadar Saraswathi College of
Engineering and Technology
Vadapudupatti, Theni-625 531.



Mam →
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Tamilnadu, India.

Project Overview

Background

The achievement of a plastic extruder machine project can be assessed based on several factors, including design specifications, functionality, efficiency, reliability, safety features, and overall project management. This project aims to develop a plastic extruder machine within a budget of Rs. 3,50,000/- The Machine will enhance efficiency, reduce labor, and lower production costs.

Objectives:

1. Material Processing

- To process raw plastic materials, such as pellets or granules, into a molten state suitable for extrusion.
- The machine should be capable of melting and homogenizing plastic materials, preparing them for the extrusion process.

2. Extrusion of Plastic Products:

- To extrude plastic materials through a die or mold to produce a specific shape, profile, or form.
- The extruder's primary function is to shape and form plastic materials according to the desired specifications, whether it's for pipes, sheets, profiles, or other products.

3. Consistency and Uniformity:

- To achieve consistent and uniform extruded products in terms of dimensions, surface finish, and overall quality.
- Uniformity ensures that the final products meet quality standards and fulfill design requirements.

4. Efficiency in Production:

- To maximize the efficiency of the extrusion process, including production speed and material usage.
- Higher efficiency results in increased productivity, reduced production costs, and improved overall economic viability.

5. Customization and Adaptability:

- To allow for customization and adaptability to produce a variety of plastic products with different specifications.
- The ability to adapt to various production requirements enhances the versatility of the extruder and its applicability in different industries.



Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.
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Tamilnadu, India.

Project Scope

Inclusions

1. Research and development of the Plastic Extruder Machine within the budget constraints.
2. Prototyping and testing of the machine for efficiency and safety.
3. Designing a simple user interface for machine operation.
4. Documentation and training materials for machine users.

Exclusions

- i. Installation of the machine at user locations (if applicable).
- ii. Post-production marketing and sales activities.

Methodology

1. Feasibility Study: (1 month) [December 1, 2022 – December 31, 2022]
2. Machine Acquisition: (2 months) [January 1, 2023 - February 28, 2023]
3. Installation and Integration (1 month) [March 1, 2023- March 31, 2023]
4. Testing and Optimization: (1 month) [April 1 2023, April 30, 2023]

Deliverables

1. Plastic Extruder Machine Prototype.
2. Simple user interface for machine operation.
3. Documentation for machine users.
4. Test results and performance analysis reports.

Timeline

1. Feasibility Study: [December 1, 2022 – December 31, 2022]
2. Machine Acquisition: [January 1, 2023 - February 28, 2023]
3. Installation and Integration [March 1, 2023- March 31, 2023]
4. Testing and Optimization: [April 1 2023, April 30, 2023]



Man
Dr. C. MATHALAI SUNDARAM, M.E.,M.B.A.,Ph.D.,
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Tamilnadu, India.

Budget Allocation

1. Research and Analysis: Rs. 50,000/-
2. Design and Prototyping: Rs. 1,45,000/-
3. User Interface Development: Rs. 50,000/-
4. Transportation- Rs.25,000/-
5. Fabrication-50,000/-
6. Documentation: Rs. 35,000/-

Total Budget: Rs. 3,50,000/-

Risks and Mitigation

1. Technical Risks: Regular testing and prototyping to identify and address issues within budget constraints.
2. Market Acceptance: Engage potential users for feedback to ensure the machine meets their expectations.

Conclusion

This project within the budget of Rs. 3,50,000/-, aims to deliver a cost-effective Plastic Extruder Machine that addresses the industry's need for efficiency and cost reduction. With a carefully planned approach and adherence to budget constraints, we anticipate delivering a valuable solution to plastic production.



Mam —
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 Tamilnadu, India.

Date: 28/09/2022

The Following faculty members are assigned to conduct research for the proposed project titled “Plastic Extruder Machine”.

List of Faculty Members

S. No	Name of the PI & Co-PI	Designation and Specialization	Contact Information
1.	Dr.C.Mathalai Sundaram	Principal and Professor/Mechanical Engineering	principal@nscet.org 9842685138
2.	Dr.B.Radha Krishnan	Head of the Department/ Mechanical Engineering	radhakrishnan@nscet.org <u>9159989767</u>

Mari ——————
28/09/22
PRINCIPAL

Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.
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 Vadapudupatti, Theni-625 531.



Theni

**AISWARYAM***Polyplastic Industries*

Email: ashokyamini11@gmail.com

Date: 01/10/2022

To**The Principal,**

Nadar Saraswathi College of Engineering and Technology,

Annanji (P.O), Vadapudupatti, Theni-625531.

Dear Sir,Subject: ***Sanctioned Fund –reg***

Reference: Proposal Submitted Dated on 28/09/2022

We are delighted to notify you that our team at Theni Aiswaryam Polyplastic Industries Pvt., Ltd has conducted a comprehensive evaluation of your project proposal named "Plastic Extruder Machine" and has granted its approval. We acknowledge the potential influence and importance of your initiative, and we are eager to assist in its effective implementation. We are glad to mail a cheque for Rs. 3,50,000/- to provide an overview of the Plastic Extruder Machine project, its relevance in plastic manufacturing processes, and help you start your project. Please use the cash efficiently and according to the approved project plan. We believe that completing this project will develop technology and give industry and society with useful insights. I appreciate your effort to this creative project. We anticipate its success.

Approved Project Details:

Title: Plastic Extruder Machine

Duration: 01/10/2022 to 02/05/2023

Budget: Rs.3,50,000/-

Project Team : 1. Dr.C.Mathalai Sundaram, Principal and Professor / Mechanical Engineering
2. Dr.B.Radha Krishnan, Head of the Department / Mechanical Engineering.



Man —
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Yours Faithfully

[Signature]
GSTIN: 33DNPPA8411L1ZV
THENI AISWARYAM
POLY PLASTICS INDUSTRIES
175Q, RATHINAM NAGAR,
UNJAMPATTI.

175 Q Annai Velankani Mill, Rathinam Nagar, Unjampatti, Theni - 625 531.



KM CONSTRUCTION COMPLEX, 41/21, MIRANDA LANE
NEAR THENI-ALLINAGARAM MUNICIPALITY THENI TAMIL NADU - 625531
IFS CODE : IBKL0001578

VALID FOR THREE MONTHS ONLY

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PAY NADAR SARASWATHI COLLEGE OF ENGINEERING & TECHNOLOGY धारक को OR BEARER

रुपये RUPEES THREE LAKHS & FIFTY THOUSAND ONLY

अदा करें।

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3,50,000 —

16/10/2020

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A/c No. 1578102000004701

Current

THENI AISWARYAM POLYPLASTICS INDUSTRIES



TO THENI AISWARYAM POLYPLASTICS INDUSTRIES

R. S. *[Signature]*
Please review

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Tamilnadu, India.

PROJECT COMPLETION REPORT

1. Project Title: Plastic Extruder Machine
2. Name of the Investigator : Dr. C. Mathalai Sundaram
 - a. E-mail: principal@nscet.org
 - b. Contact Address: Nadar Saraswathi College of Engineering and Technology, Annanji(P.O), Vadapudupatti, Theni-625531.
 - c. Mobile No.: 9443488999
3. Name of the Institution of which Investigator is attached: Nadar Saraswathi College of Engineering and Technology
4. Name of the Director / Principal of the Institution: Dr. C. Mathalai Sundaram
5. Date of **Release** of R & D Grant: 01/10/2022
6. Amount of R & D Grant: Rs. 3,50,000
7. How much work is yet to be completed with the reason of delay: **NIL**
 - a. Percentage of work completed: 100%
 - b. Amount utilized till date: Rs.3,50,000
8. How much work is yet to be completed with the reason of delay: **NIL**
 - a. Work yet to be completed with details: **NIL**
 - b. Reason for delay : **NIL**
9. Probable date of completion of the project: **NIL**



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Tamilnadu, India.

10. Amount of matching grant: 3,50,000 INR

- Name and address of the organization: Nadar Saraswathi College of Engineering and Technology, Annanji(P.O), Vadapudupatti, Theni-625 531.
- Amount received: Rs.3,50,000
- Amount utilized till date: Rs. 3,50,000

11. Name of the organizations providing support to the project: **NIL**

- Name of the organization: **NIL**
- Nature of support e.g. financial, technical and infrastructural: **NIL**
- Support yet to be received: **NIL**

12. Project Achievements in brief:

The development of plastic extruder machine project can be assessed based on several factors, including design specifications, functionality, efficiency, reliability, safety features, and overall project management. This project aims to develop a cost-effective plastic extruder machine within a budget of Rs. 3,50,000/-.

13. Expected beneficiaries of the project:

Data collected by smart sensors used in this project stored in cloud, can verify and utilize it at any Project Scope.

Objectives

1. Material Processing

- To process raw plastic materials, such as pellets or granules, into a molten state suitable for extrusion.
- The machine should be capable of melting and homogenizing plastic materials, preparing them for the extrusion process.

2. Extrusion of Plastic Products:

- To extrude plastic materials through a die or mold to produce a specific shape, profile, or form.
- The extruder's primary function is to shape and form plastic materials according to the desired specifications, whether it's for pipes, sheets, profiles, or other products.



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3. Consistency and Uniformity:

- To achieve consistent and uniform extruded products in terms of dimensions, surface finish, and overall quality.
- Uniformity ensures that the final products meet quality standards and fulfill design requirements.

4. Efficiency in Production:

- To maximize the efficiency of the extrusion process, including production speed and material usage.
- Higher efficiency results in increased productivity, reduced production costs, and improved overall economic viability.

5. Customization and Adaptability:

- To allow for customization and adaptability to produce a variety of plastic products with different specifications.
- The ability to adapt to various production requirements enhances the versatility of the extruder and its applicability in different industries.

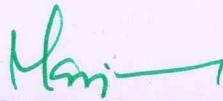
Inclusions

1. Research and development of the Plastic Extruder Machine within the budget constraints.
2. Prototyping and testing of the machine for efficiency and safety.
3. Designing a simple user interface for machine operation.
4. Documentation and training materials for machine users.

Exclusions

1. Installation of the machine at user locations (if applicable).
 2. Post-production marketing and sales activities.
14. Any other information to be furnished regarding progress of project: NIL




Dr. C. MATHALAI SUNDARAM, M.E.,M.B.A.,Ph.D.,
Principal
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UTILIZATION CERTIFICATE

1. Title of the Project : Plastic Extruder Machine
2. Name of the Institution : Nadar Saraswathi College of Engineering and Technology, Theni
3. Name of the Principal Investigator : Dr.C.Mathalai Sundaram, Professor and Principal
Dr.B.Radha Krishnan, Asso. Prof. and HoD/ Mechanical

Certified that out of ₹3,50,000 of grants-in-aid sanctioned during the year 2022-2023 in favor of Nadar Saraswathi College of Engineering and Technology under consultancy projects dated 01/10/2022 and ₹3,50,000. A sum of ₹3,50,000 has been utilized for the purpose of developing a Plastic Extruder Machine, Result validation for which it was sanctioned. I further certify that the entire grant amount has been utilized judiciously and exclusively for the purpose stated in the research proposal.

Mam 29/04/23

PRINCIPAL INVESTIGATOR



PRINCIPAL

Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.,

Principal

**Nadar Saraswathi College of
Engineering and Technology
Vadapudupatti, Theni-625 531.**



Mam →

Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.,

Principal

**Nadar Saraswathi College of
Engineering and Technology
Vadapudupatti, Theni-625 531.**

GSTIN : 33DNPPA8411L1ZV

9944257345

9943257345



Theni

AISWARYAM

Polyplastic Industries

Email: ashokyamini11@gmail.com

Date: 12/05/2023

To

The Principal,

Nadar Saraswathi College of Engineering and Technology,
Annanji (P.O), Vadapudupatti, Theni-625531.

Dear Sir,

Subject: Plastic Extruder Machine— reg.

We received your project report and Utilization certificate from **Dr. C. Mahalai Sunadarm** and **Dr. B. Radha Krishnan** for project completion. Our immense pleasure to collaborate with you in Plastic extruder machine fabrication.

We express our desire to participate in future research projects and extend our gratitude to Nadar Saraswathi College of Engineering and Technology for the successful culmination of the research endeavour.

Thanking you.



Hari
Dr. C. MATHALAI SUNDARAM, M.E., M.B.A., Ph.D.
Principal
Nadar Saraswathi College of
Engineering and Technology
Vadapudupatti, Theni-625 531

Yours Faithfully,

GSTIN: 33DNPPA8411L1ZV

THENI AISWARYAM
POLY PLASTICS INDUSTRIES
175Q, RATHINAM NAGAR,
UNJAMPATTI,
THENI-625 531

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