2.2.3. F. Evidences of papers published /Awards received by projects etc.

KSCST Awards:

Department of Electrical and Electronics Engineering Student's Project bagged the "**Best Project Award**" in 45th series of Student Project Programme (SPP) : 2021-22 held at Visvesvaraya Technological University (VTU), Belagavi on 12th and 13th August 2022 by KSCST (Karnataka State Council of Science Technology, Bangalore).

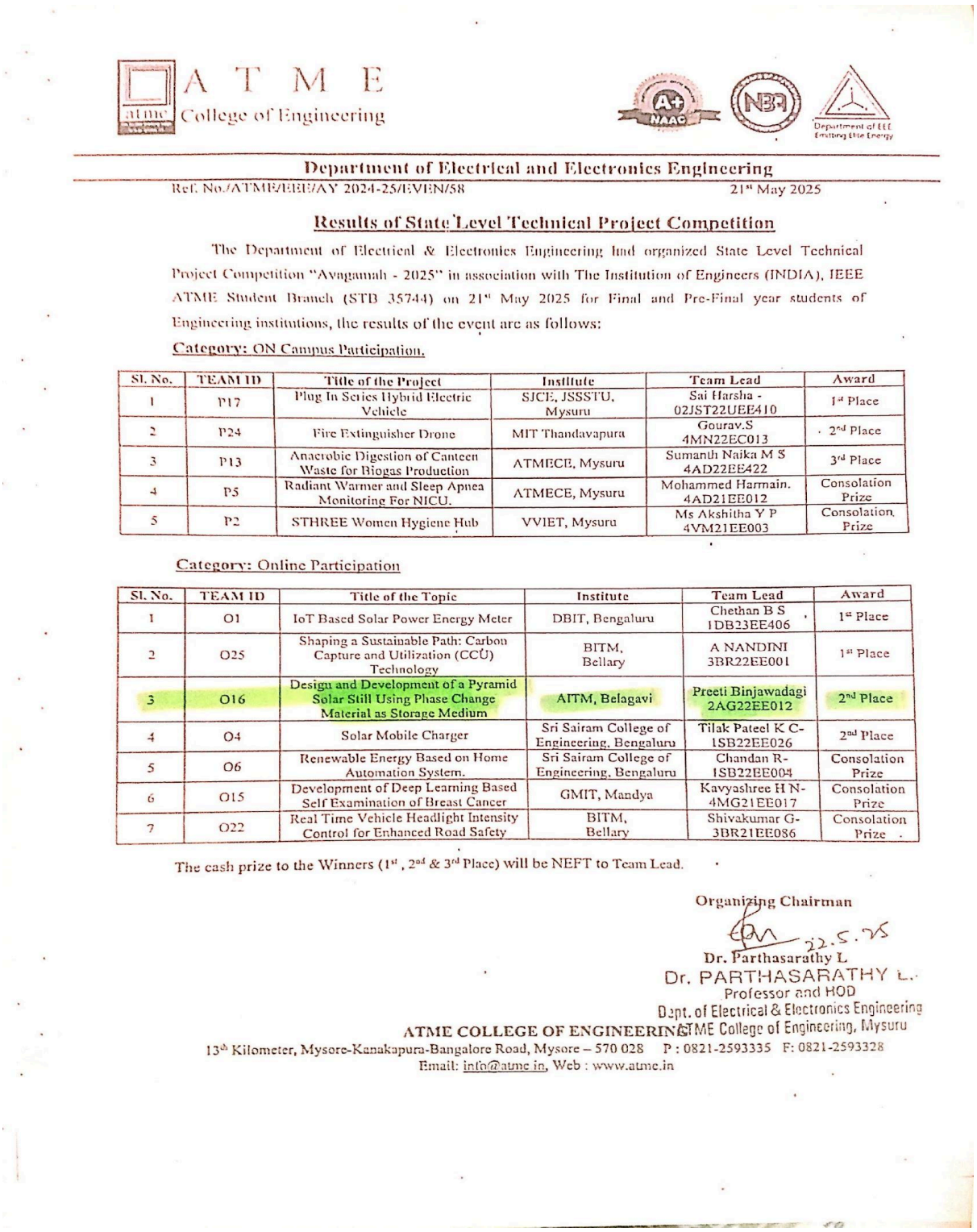
Project/Paper Presentation Awards

- The Department of Electrical and Electronics Engineering, Angadi Institute of Technology and Management (AITM), Belagavi, proudly congratulates Sagar Rathod, Deepthi Chougale, Aditya Kulkarni and Mallu Arutagi for securing the First Prize at the National Level Project Presentation held at AGM, Varur, Hubli.
- Their award-winning project, titled “Solar-Biomass Hybrid Dryer for Rural Communities” impressed the jury with its innovation, practical application, and sustainable approach. Competing against top teams from premier institutions, Sagar R, Mallu, Aditya and Deepthi C stood out for their creativity, technical knowledge, and impactful solution to real-world

- challenges.

- **State Level Technical Project Competition**

Students of 6th Sem securing the **2nd Prize** in the **State Level Project Presentation** held at **ATME College of Engineering, Mysuru**, organized in association with the **Institution of Engineers (India)** and **IEEE ATME Students Branch (STB35744)**.



A T M E
College of Engineering

Department of Electrical and Electronics Engineering

Ref. No./ATME/EEE/AY 2024-25/EVEN/58 — 21st May 2025

Results of State Level Technical Project Competition

The Department of Electrical & Electronics Engineering had organized State Level Technical Project Competition "Avagaahah - 2025" in association with The Institution of Engineers (INDIA), IEEE ATME Student Branch (STB 35744) on 21st May 2025 for Final and Pre-Final year students of Engineering institutions, the results of the event are as follows:

Category: ON Campus Participation.

Sl. No.	TEAM ID	Title of the Project	Institute	Team Lead	Award
1	P17	Plug In Series Hybrid Electric Vehicle	SJCE, JSSSTU, Mysuru	Sai Harsha - 02JST22UEE410	1st Place
2	P24	Fire Extinguisher Drone	MIT Thandavapura	Gourav.S 4MN22EC013	2nd Place
3	P13	Anaerobic Digestion of Canteen Waste for Biogas Production	ATMECE, Mysuru	Sumanth Naika M S 4AD22EE422	3rd Place
4	P5	Radiant Warmer and Sleep Apnea Monitoring For NICU.	ATMECE, Mysuru	Mohammed Harmain. 4AD21EE012	Consolation Prize
5	P2	STHREE Women Hygiene Hub	VVIET, Mysuru	Ms Akshitha Y P 4VM21EE003	Consolation Prize

Category: Online Participation

Sl. No.	TEAM ID	Title of the Topic	Institute	Team Lead	Award
1	O1	IoT Based Solar Power Energy Meter	DBIT, Bengaluru	Chethan B S 1DB23EE406	1st Place
2	O25	Shaping a Sustainable Path: Carbon Capture and Utilization (CCU) Technology	BITM, Bellary	A NANDINI 3BR22EE001	1st Place
3	O16	Design and Development of a Pyramid Solar Still Using Phase Change Material as Storage Medium	AITM, Belagavi	Preeti Binjawadagi 2AG22EE012	2nd Place
4	O4	Solar Mobile Charger	Sri Sairam College of Engineering, Bengaluru	Tilak Pateel K C-1SB22EE026	2nd Place
5	O6	Renewable Energy Based on Home Automation System.	Sri Sairam College of Engineering, Bengaluru	Chandan R-1SB22EE004	Consolation Prize
6	O15	Development of Deep Learning Based Self Examination of Breast Cancer	GMIT, Mandya	Kavyashree H N-4MG21EE017	Consolation Prize
7	O22	Real Time Vehicle Headlight Intensity Control for Enhanced Road Safety	BITM, Bellary	Shivakumar G-3BR21EE086	Consolation Prize

The cash prize to the Winners (1st , 2nd & 3rd Place) will be NEFT to Team Lead.

Organizing Chairman

22.5.25

Dr. Parthasarathy L
Dr. PARTHASARATHY L.
Professor and HOD
Dept. of Electrical & Electronics Engineering
ATME College of Engineering, Mysuru

ATME COLLEGE OF ENGINEERING
13th Kilometer, Mysore-Kanakapura-Bangalore Road, Mysore – 570 028 P : 0821-2593335 F: 0821-2593328
Email: info@atme.in, Web : www.atme.in

National Level Project Competition

Students of 6th Semester, Department of Electrical and Electronics Engineering, have won the **Best Project Award** at the **National Level Project Competition** held at **AITM, Belagavi**.

Their innovative project and outstanding presentation skills stood out among participants from various institutions across the country. This remarkable achievement reflects their hard work, dedication, and the quality of education imparted at our institution.

Paper Publication

Sl.NO	Name of the Students	Title	Name of the Guide	Journal	Year of Publication, Volume and Issue	Impact Factor

1	Sandesh Mantri Aman Wakilkar Shivabasayya Mathad Deepthi Kurbet	Recycling Plastic Bottles into Sustainable 3D Printing Filament and Electrical Insulator Material	Prof.Vinay Pattanshetti	IRJMETS	2025/Volume:07/Issue:05	8.187
2	Mallu Arutagi Sagarrathod Deepti Chougla Aditya Kulkarni	Solar Biomass Hybrid Dryer for Farmers and Rural Community	Prof.Kantesh D C	IRJMETS	2025/Volume:07/Issue:05	8.187
3	Sunita Shidagoudar Spoorthi Tattimani Saiyad Nijamuddin Basavaraj Annigeri	Design and Development of Walkin Type Hemi Cylindrical Solar Tunnel Dryer for Industrial Use	Prof.Vinaychandrika Kale	IRJMETS	2025/Volume:07/Issue:05	8.187
4	Sriram Deshpande Shridhar Dhaduti Rahul Meeshi Daneshwari Jambagi	Design and Development of Pyramid Solar Still Using Phase Changing material	Prof.Rajendra Ghivari	IJSRET	2025/Volume:11/Issue:3	3.241

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

RECYCLING PLASTIC BOTTLES INTO SUSTAINABLE 3D PRINTING FILAMENT AND ELECTRICAL INSULATOR MATERIAL

Sandesh Mantri*1, Aman Wakilkar*2, Shivabasayya Mathad*3, Deepthi Kurbet*4, Vinay Pattanshetti*5

*1,2,3,4,5Angadi Institute Of Technology And Management Electrical & Electronics Engg, Visvesvaraya Technological University Savagaon Road, Belagavi, India.

DOI: https://www.doi.org/10.56726/IRJMETS77720

ABSTRACT

Plastic waste has become a critical environmental concern due to its non-biodegradable nature and increasing accumulation. This study presents the design and fabrication of a compact, low-cost plastic recycling machine aimed at addressing plastic pollution through small-scale, localized recycling. A review of literature highlights mechanical recycling as a widely adopted, cost-effective method, with initiatives like Precious Plastic demonstrating practical community-level solutions. The main objectives were to design an efficient recycling machine, fabricate it using locally available materials, and evaluate its performance in processing common plastic types such as LDPE and PET. The methodology included CAD-based design, fabrication of a shredder, extruder, and mold, followed by testing the machine's capacity, energy use, and quality of output. Results showed that the machine could shred and extrude up to 5 kg of plastic per hour, with consistent operating temperatures between 180°C and 220°C, producing uniform filaments and molded items. The project concluded that this machine provides an effective, affordable, and accessible means for small communities and institutions to manage plastic waste and support circular economy initiatives. Improvements in automation and safety features could further enhance its usability and efficiency.

Keywords: Electrical Insulator, Filament Extrusion LDPE (Low Density Polyethene), PET (Polyethylene Terephthalate) 3D Printing Filament.

I. INTRODUCTION

Recycling plastic bottles into sustainable 3D printing filament and electrical insulator material presents an innovative solution to two pressing global challenges: plastic pollution and the need for eco-friendly manufacturing resources. Plastic bottles, primarily composed of PET (Polyethylene terephthalate) and LDPE (Low density polyethene), are abundant waste materials that hold great potential for upcycling into valuable products. This project aims to transform discarded plastic bottles into high-quality 3D printing filament and functional electrical insulators. By leveraging accessible recycling and extrusion technologies, we can create materials suitable for diverse applications, including prototyping, low-voltage electrical components, and sustainable consumer products. Recycled PET , LDPE -based filaments offer strength, flexibility, and thermal stability, while also serving as effective electrical insulators due to their inherent dielectric properties. With appropriate processing and additive enhancements, these recycled materials can meet both mechanical and electrical performance standards.

II. METHODOLOGY

- Collection & Sorting: Gather discarded PET and LDPE bottles; remove labels and contaminants.
- Cleaning: Wash and dry plastics to eliminate dirt and moisture.
- Shredding: Shred cleaned bottles into small, uniform flakes.
- Extrusion: Melt shredded plastics:
- Melt the PET-LDPE mixture at 90-100°C using a heated screw system and specialized nozzles.
- Filament/Insulator Formation: Shape PET into filament; mold LDPE into low-voltage insulators.
- Quality Control: Sensors monitor filament diameter; automated adjustments ensure consistency.

KSCST Project Details

2023-2024

SL.NO	Project Title	Duration	Funding Agency	Amount
1	Step Solar Still	12 Months	K-Tech NAIN	
2	Design and fabrication of Box Type of Solar Cooker	12 Months	K-Tech NAIN	
3	Design and Fabrication of Improvised Parabolic Trough	12 Months	K-Tech NAIN	

2024-2025 (CAY)

SL.NO	Project Title	Duration	Funding Agency	Amount
1	RECYCLING PLASTIC BOTTLES INTO SUSTAINABLE 3D PRINTING FILAMENT AND ELECTRICAL INSULATOR MATERIAL	6 months	KSCST	6500.00
2	DESIGN AND DEVELOPMENT OF A PYRAMID SOLAR STILL USING PHASE CHANGE MATERIAL AS STORAGE MEDIUM	6 months	KSCST	5500.00
3	SOLAR BIOMASS HYBRID DRYER FOR FARMERS AND RURAL COMMUNITY	6 months	KSCST	6000.00
4	IMPROVED BIOMASS COOK STOVE FOR RURAL AND MOUNTAINOUS	6 months	KSCST	5000.00

2023-2024 (CAYm1)

SL.NO	Project Title	Duration	Funding Agency	Amount
1	M SHAPE LOW-COST SOLAR STILL FOR RURAL AND ISOLATED COMMUNITIES	6 months	KSCST	4000.00
2	HARNESSING WIND ENERGY FROM VERTICAL AND HORIZONTAL AXIS WIND TURBINE	6 months	KSCST	4500.00

2022-2023(CAYm2)

SL.NO	Project Title	Duration	Funding Agency	Amount

1	DUAL OPERATING PARABOLIC TROUGH RECEIVER FOR FOOD COOKING AND HOT WATER GENERATION FOR RURAL AREAS	6 months	KSCST	6500.00
2	DESIGN AND FABRICATION OF STEP SOLAR OVEN USING SENSIBLE HEAT AS STORAGE MEDIUM FOR REFUGEE CAMPS	6 months	KSCST	5000.00

2021-2022 (CAYm3)

SL.NO	Project Title	Duration	Funding Agency	Amount
1	STEP SOLOR STILL: DESIGN MODIFICATION IN SOLAR STILL AND INCORPORATION OF PHASE CHANGING MATERIAL TO INCREASE THE EFFICIENCY OF STEP SOLAR STILL	6 months	KSCST	6000.00
2	WIRELESS CHARGING LANE FOR ELECTRIC VEHICLE	6 months	KSCST	7000.00

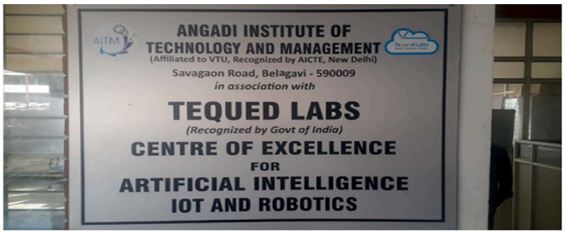
2.2.4 Initiative related to industry interaction

2.2.4.A Industry Supported Laboratories

The industry supported laboratories develops best learning process using a comprehensive understanding of industry's best practices for both students and faculties. This initiative imbibes professionalism, behaviour aspects and awareness about industry expectations and also aligns aspirations of the students with the needs of the industries and promotes career counselling by organizing guidance lectures by senior corporate personnel.

The details of the industry supported laboratories are as shown in Table 2.2.4.A. And the corresponding MoU is shown in Figure 2.2.4.A

Sl.NO	Lab	Industry	Objective	Lab Components Provided
1	Tequed Labs (AI, IoT and Robotics Lab)	R & D innovation hub focussed on providing quality education on latest and cutting-edge technologies to students and specialized in software hardware development along with placement training.	To set up a lab for AI, IoT and Robotics and deliver orientation programs, guest lectures, conduct hackathons, project expo and promote entrepreneurship.	-3D Printer with filaments - IoT Kits -Robotics Kits -AI Development Boards -Amazon Alexa -Virtual reality Head sets -Voice Recoginsation Kits -AWS Cloud Credits -Battery Packs


ANGADI INSTITUTE OF
TECHNOLOGY AND MANAGEMENT
(Affiliated to VTU, Recognized by AICTE, New Delhi)
Savagaon Road, Belagavi - 590009
in association with
TEQUED LABS
(Recognized by Govt of India)
CENTRE OF EXCELLENCE
FOR
ARTIFICIAL INTELLIGENCE
IOT AND ROBOTICS


POCO
SHOT ON POCO F1


POCO
SHOT ON POCO F1

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding ("MoU") is made on July 21st 2020, by and between:

Angadi Institute of Technology & Management

and

TEQUED LABS PVT LTD

Angadi Institute of Technology & Management, an entity incorporated under the laws of India represented by its Principal. (Here in after referred as **"AITM"**).

AND

TEQUED LABS PRIVATE LIMITED -having its Registered Office No 10, BSK 3rd Stage, Bangalore, Karnataka, India, 560085 (hereinafter referred to as **"TEQUED LABS"**):

AITM and TEQUED LABS shall hereinafter be collectively referred to as **"Parties"** and individually as **"Party"**

WHEREAS

A. **AITM** is specialized in providing value-added, holistic engineering education to students at affordable costs, in conducive academic ambience, leading to Personality development and intellectual growth.

B. **TEQUED LABS** is an R&D Innovation Hub and educational institute which is focused on providing quality education on latest and cutting-edge technologies to students and also specializing in software/ hardware Development along with Placement Training. The goal of the company is to promote innovation, entrepreneurship and also increasing employability quotient thus making them Job- Ready.

C. The Parties wish to co-operate with each other as per the terms and conditions enumerated in this MoU.

Aditya SK

TEQUED LABS PVT. LTD.
No. 10, Anjaneya Nagar,
BSK 3rd Stage,
BANGALORE - 560 085.

Lab Setup

Tequed Labs will invest an amount of 2-3 Lakhs and set up Innovation Center / Centre of Excellence. Following set of components shall be provided

1. 3D printer with filament
2. IoT Kits (Boards, Sensors, Connectors, Wires etc)
3. Robotics Kits (5 Nos)
4. Artificial Intelligence Development Boards
5. Amazon ALEXA
6. Virtual Reality Headsets -10
7. Voice Recognition Kits
8. AWS Cloud Credits
9. Battery Packs for Electric Vehicle development

Paid Workshops / Events

Tequed labs will charge a nominal fee for all the workshops and Skill Development Programs which will be conducted for all students from different branches in the college under the COE.

Aditya SK

TEQUED LABS PVT. LTD.
No. 10, Anjaneya Nagar,
BSK 3rd Stage,
BANGALORE - 560 085.

IN WITNESS THEREOF, each of **AITM** and **TEQUED LABS** - having its Registered Office No 10, BSK 3rd Stage, Bangalore, Karnataka, India, 560085 has caused this MoU to be signed and delivered by its duly authorized representative.

21/7/2020

Dr. Anand Deshpande
Principal
AITM
Belgaum

Mr. Supreeth Y S
Director and CEO
TEQUED LABS
Bangalore

21/7/2020

Prof. Vishalkirthi S. Patil
Placement Officer
Electronics & Communication
Faculty Co-ordinator
AITM
Belgaum

Mr. Aditya S K
Director and CTO
TEQUED LABS
Bangalore

TEQUED LABS PVT. LTD.
No. 10, Anjaneya Nagar,
BSK 3rd Stage,
BANGALORE - 560 [illegible].

Date :

Date: 21/07/2020

Utilization of Tequed Labs

MOU with HESCOM

सत्यमेव जयते

INDIA NON JUDICIAL

Government of Karnataka

Rs. 100

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Please write or type below this line

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ('MOU') is made at Hubli Electricity Supply Company Limited, Hubballi, Karnataka, India on this 09th day of January 2023 by and between:

Principal & Director
Suresh Angadi Education Foundation
Angadi Institute of Technology And Management
Savagaon Road, Belagavi-590 009

General Manager
(Admin & HRD)
HESCOM., Hubballi.

Contd... Pg. 1/6

2.2.5 Initiative related to industry internship/summer training

2.2.5.A Industrial visits are a vital component of engineering education that significantly contribute to the holistic development of students. These visits bridge the gap between theoretical knowledge and practical applications by exposing students to real-time industrial practices and emerging technologies. They offer first-hand insight into how engineering concepts are applied in the industry, thereby enhancing students' understanding and motivation. The Table 2.2.5.A. shows the industrial visits by students.

2024-2025

Sl.No	**Type of Industry**	**Planned or Non Planned Activity**	**No.of Students Participated**	**Domain**	**Year**
1	Varahi Underground Power Plant, Udupi	Non Planned Activity	42	Power and Energy	2024
2	Wind Energy	Non Planned Activity	33	Power and Energy	2024
3	220 kV Switching Station	Non Planned Activity	33	Electrical Power Systems Engineering	2024

2022-2023

Sl.No	**Type of Industry**	**Planned or Non Planned Activity**	**No.of Students Participated**	**Domain**	**Year**
1	Supa Power House	Non Planned Activity	57	Power and Energy	2022
2	Sharavathi Hydro Power Plant	Non Planned Activity	30	Power and Energy	2022


Belagavi, Karnataka, India
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Long 74.5489431°
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