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**3 day National Level Conference on**  
**ADVANCES IN MATERIALS AND PROCESSES FOR SUSTAINABLE APPLICATIONS (AMP-SA-2023)**  
**23 to 25 March 2023**

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**IMPORTANT DATES**

Abstract Submission last date	20 February 2023
Acceptance of abstract	28 February 2023
Early bird Registration	6 March 2023
Registration last date	12 March 2023
Confirmation for conference	15 March 2023


**KEYNOTE SPEAKERS**




**Dr. K. Rajkumar**  
 Director, IITM, Thane




**Dr. P. R. Gogate**  
 Professor, I.I.T. Mumbai



**Dr. D. D. Sarode**  
 Professor, I.I.T. Mumbai



**Dr. Ranganayakulu Bodavala**  
 Founder, Director, IITD, Mumbai  
 Professor, IITD, Mumbai




**Dr. K. S. Bhole**  
 Assoc. Professor, IITD, Mumbai

**REGISTRATION**

Category	Fees (in INR)
Student	500
Ph.D./Postdoc researcher	1000
Academician	1500
Industry person	2000

Registration for the conference is mandatory. Please visit the conference website for registration or scan QR Code below or click below



[Click here to register](#)

**ABSTRACT SUBMISSION**

Abstract should be submitted in the format given on website only. Please visit website for further details. Conference Abstract Volume will be published with ISBN Number. Full length paper will be called with additional charges subject to selection by the relevant journal after peer review.

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**HOW TO REACH**

**Nearest Airport:**  
 Kharjapur 200 km, Mumbai, 750 km

**Nearest Railway Station:**  
 Khed, 15 km, Chitaur, 20 km

**Nearest S.T. Stands:**  
 Khed, 15 km, Chitaur, 25 km

**By Road:**  
 - About 250 km from Mumbai  
 - 300 kms away from Pune  
 - 200 kms away from Kolhapur  
 - On NH-17 (Mumbai-Goa Highway)

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10\_Automatic Sorting And Packaging Of Moulded Parts

**23-25 Mar-23 : 3 Day National Level Conference on "Advances in Materials & Processes for Sustainable Applications (AMP-SA-2023)"**

[Name of the proceedings]

## Automatic sorting and packaging of moulded parts

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### Abstract

It is been understood that in these emerging manufacturing and assembly industries, reducing human interaction and utilizing automation are essential practices to adopt in order to achieve a high production rate, which is the only way to obtain a high margin, our project helps to do so. This project is related to the designing and manufacturing of a special purpose machine (SPM).

Our model not only conveys the product but also helps with packaging in an effective manner. Our SPM includes an inclined type of belt conveyor (for the required elevated height), a weighing system, and a pneumatic sealing system for packing the correct quantity of product extracted from the injection moulding machine, SPM is designed to pack the parts of a clutch pencil like the tip of the pencil, the sleeve, the refill, the cap, the eraser, the cone, the shaft, the dispenser ring, the clip.

The evaluation encompasses multiple facets such as optimal design selection, capability, and energy calculations of the model, additives in belt conveyors and their impact. The belt conveyor used in the processing industry is considered to have a layout potential of 0.1 TPH and a speed of 0.0072 m/sec. The main advantage of implementing this SPM is that it uses very little floor space—nearly 2 meters—to automate the process.

**Keywords:** *Automation; Special purpose machine (SPM); packaging; Moulded parts; Conveyor.*

### 1. Introduction

This project is affiliated with the industry name Genesis Engineering Solutions (GES). This supplies stationery items like clutch and mechanical pencils, highlighters, stamp pads, markers, glue, etc. Also, this company works on the design and development of products in various fields. Since GES assembles the parts of clutch pencils, they require a labour force. This labour collects the moulded parts of pencils, weighs them, packs them, and sends them to the unit that will do the assembly. Because there are many stationary items working at the same time, it becomes essential to provide the correct part of pencil in the correct quantity to correct labour. It is found that handling material and then processing after extracting from injection moulding machine is consuming lots of time and energy of labour hence they were suggested to develop SPM special purpose machine. There are two major components of SPM first is conveying of materials or parts of clutch pencil through conveyor (flat belt conveyor) and second is to sort order quantity through packaging system. SPM is been designed which not only works for packaging of clutch pencil parts but for all injection moulded parts that is to be packaged in future but it have limited with 5kg weight.

### 2. Objectives

- To increase Productivity and make easy work flow system.
- To reduce human Effort and Interference.
- To Minimize Wastage of material.
- To gain competitive system development.
- Easy to use and should acquire less space.

### 3. Ease of use

#### 3.1 Labour Psychology

As the hours pass, many workers lose their energy by doing the same and continuous work, due to which the production rate and quality of work decrease, which results in inaccuracies and delays. It is ensure that in industry, labour is, not replaced. The work done by labor, like collecting, weighing, filling, and packaging, is not a skilful task; hence, Special purpose machine is designed in such a way that an unskilled person is equally capable of operating the system, and at the same time, it's simple in its mechanisms too.

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# CERTIFICATE

This is to certify that

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