



SRI VENKATESWARA

COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai
(A Telugu Minority Institution)

Date: 24.05.2021

To

Managing Director,
ARROW MACHINE TOOLS
New No.18, Old No. 1, Balaji Nagar,
Ambattur,
Chennai- 600 053

Dear Sir,

Subject: Request for Financial Assistance of Funded Project -Reg

I am requesting to you on behalf of Sri Venkateswara College Of Engineering And Technology, specifically from the Department of Mechanical Engineering. Our department is actively seeking opportunities to engage in funded projects that align with our academic goals and research interests. We are particularly interested in exploring projects that involve faculties and students. The funded project topic is on **“DESIGN AND FABRICATION OF ZERO FRICTION ELECTROMAGNETIC BRAKING SYSTEM”** We are looking forward to the possibility of collaborating with you and your team.

PROJECT ANALYZER – S.RAJASEKAR /AP/MECH

Thanking you



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Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

Warm regards,


PRINCIPAL
PRINCIPAL

Sri Venkateswara College of
Engineering and Technology,
Thirupachur, Thiruvallur - 631 203



New No 15, Old No 1, Balaji Nagar
Ambattur, Chennai - 600 053, Tamilnadu.
Phone: 044-26582694, 044-26560019
E-mail: sales@arrowmachinetools.com
GSTIN No: 33AAEFA9403F17W

ARROW MACHINE TOOLS

Date: 02.06.2021

To
The Principal
Sri Venkateswara college of Engineering and Technology
Thirupachur
Thiruvallur - 631 203.

Dear Sir,

Sub: Financial support - Acceptance regarding

Greeting! We introduce ourself as ARROW MACHINE TOOLS objectives in manufacturing of Mechanical components for Industries and educational Institutions. We had go through your project proposal submitted on Title "DESIGN AND FABRICATION OF ZERO FRICTION ELECTROMAGNETIC BRAKING SYSTEM" and we are happy to announce that we provide fund for this project to do and the payment will be send through online to PROJECT ANALYZER - Mr.S.RAJASEKAR/AP

SANCTIONED AMOUNT - Sum of Rupees - 1,50,000/

Terms and Conditions:

1. The commencement of work comes in to immediate effect as you receive this work order
2. The payment will be matured 100% after the completion of work.



For Arrow Machine Tools

N.SANTH KUMAR
C.E.O

[Signature]
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Engineering and Technology,
Thirupachur, Thiruvallur - 631 203

[Signature]
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Name	: RAJASEKAR SELVAMANI	Branch Name	: Thiruvallur
Communication Address	: S/O SELVAMANI, 293, MARIAMMAN KOVIL STREET, KIL., KANGBYANKUPPAMPPOST, CUDDALORE, , TAMIL NADU, INDIA- 607805	Branch sol ID	: 1838
Address Last Updated On	: 31/07/2019	Account Number	: 99980107299153
Regd. Mobile Number	: 919843623539	Customer ID	: 130810259
Email ID	: rajasekar.mec0709@gmail.com	Account Open Date	: 12/09/2018
Type of Account	: Savings Account	Account Status	: ACTIVE
Scheme	: SB FEDSALARY PREMIUM	Mode of Operation	: SINGLE
IFSC	: FDRL0001838	Joint Holders	: NIL
MICR Code	: 600049025	Nomination	: REGISTERED
SWIFT Code	: FDRLINBBIBD	Currency	: INR
Effective Available Balance	: 153.95	Date of Issue	: 22/12/2021

Statement of Account for the period 2021-12-22 to 2021-12-24

Date	Value Date	Particulars	Tran Type	Tran ID	Cheque Details	Withdrawals	Deposits	Balance	DR /CR
		Opening Balance						153.95	Cr
22-DEC-2021	22-DEC-2021	NFT/RRB BHU/SBIN421356266959 /SBI	FT	S1570312			390.00	543.95	Cr
22-DEC-2021	22-DEC-2021	UPIOUT/135666629465 /dream11@yespay/Paying to/5816	TFR	S1618139		34.00		509.95	Cr
23-DEC-2021	23-DEC-2021	UPIOUT/135776229886 /kodhandaraman22@oksbi/UP/0000	TFR	S5218241		400.00		109.95	Cr
23-DEC-2021	23-DEC-2021	NFT/ARROWMACHINETOOLS/587456 259152/axisbank/1608	TFR	S5262511			150000.00	150109.95	Cr
24-DEC-2021	24-DEC-2021	UPI IN/135895847523 /yokesh965374@okaxis/UPI/0000	TFR	S12767943			78.00	150187.95	Cr
24-DEC-2021	24-DEC-2021	UPIOUT/135896084646 /dream11@yespay/Paying to/5816	TFR	S12864210		40.00		150147.95	Cr
		GRAND TOTAL				474.0	150468.0		

Abbreviations Used:

CASH	: Cash Transaction	TFR	: Transfer Transaction
FT	: Fund Transfer	CLG	: Clearing Transaction
SBINT	: Interest on SB Account	MB	: Mobile Banking

DISCLAIMER: This computer generated statement contains the particulars of the transaction(s) in the account that have been updated till the time of day end operations of the CBS system of the Bank on the previous working day and the same will not reflect the transaction(s) that have occurred in the account, if any, subsequent thereto. The Federal Bank Ltd. shall not be liable/responsible for want of full particulars of the transaction(s) at the time of the generation of this statement.

This is a computer generated statement which need not normally be signed. Contents of this statement will be considered correct if no error is reported within 21 days of the statement date.

****END OF STATEMENT****



The Federal Bank Ltd. Corporate Office: Federal Towers, Market Rd, Periyar Nagar, Aluva, Kerala - 683101, Ph:0484 2630996 Website:www.federalbank.co.in

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ACADEMIC YEAR 2021-22

Name of the Research project/Endowment: **"Design and Fabrication of Zero Friction Electromagnetic Braking System"**

Name of the Principals Investigator : Mr. S.RAJASEKAR/ AP -Principal Investigator

Department of Principal Investigator : Mechanical Engineering

Name of the Funding Agency : ARROW MACHINE TOOLS

Amount Sanctioned (INR in Lakhs) : Rs. 150000 /-

S.NO	ITEM/DESCRIPTION	DETAILS
1	PROJECT TITLE	DESIGN AND FABRICATION OF ZERO FRICTION ELECTROMAGNETIC BRAKING SYSTEM
2	ABSTRACT	This method has its own drawbacks and must be replaced with a more reliable braking system that is quick in response, doesn't heat up and is maintenance free. In this project the design of an electro-magnetic braking system and optimization for various operational parameters has been done and the advantage of using the electromagnetic braking system in automobile is studied. These parameters have been previously iterated in cited projects and papers and also in the simulation models and are to be cross-checked with the experimental setup.



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3	INTRODUCTION	<p>Most brakes commonly use friction between two surfaces pressed together to convert the kinetic energy of the moving object into heat, though other methods of energy conversion may be employed. For example, regenerative braking converts much of the energy to electrical energy, which may be stored for later use. Other methods convert kinetic energy into potential energy in such stored forms as pressurized air or pressurized oil. Eddy current brakes use magnetic fields to convert kinetic energy into electric current in the brake disc, fin, or rail, which is converted into heat. Still other braking methods even transform kinetic energy into different forms, for example by transferring the energy to a rotating flywheel.</p> <p>Friction brakes on automobiles store braking heat in the drum brake or disc brake while braking then conduct it to the air gradually. When traveling downhill some vehicles can use their engines to brake. When the brake pedal of a modern vehicle with hydraulic brakes is pushed against the master cylinder, ultimately a piston pushes the brake pad against the brake disc which slows the wheel down. On the brake drum it is similar as the cylinder pushes the brake shoes against the drum which also slows the wheel down</p>
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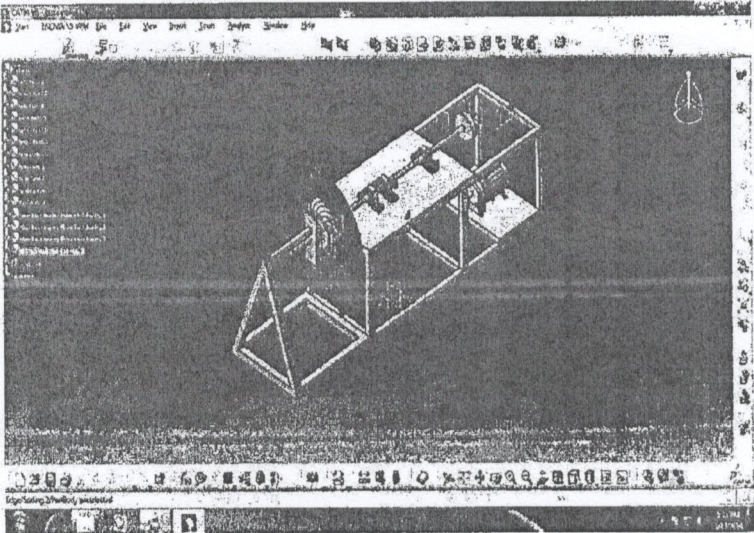


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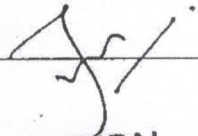
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4	IMPLEMENTATION SETUP	
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Sl.No.	Speed	Experimental Time taken when		Theoretical Time taken
		Brakes are applied	Brakes are not applied	
1.	150	2.10	4.41	0.85
2.	200	2.70	5.13	1.52
3.	250	3.37	5.80	2.38
4.	300	4.34	6.91	3.50
5.	350	5.81	8.26	4.67
6.	400	6.79	8.91	6.10
7.	450	7.95	9.69	7.72




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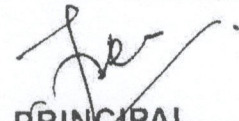
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5	CONCLUSION	<p>Electromagnetic brakes are important supplementary retardation equipment in addition to the regular friction brakes. They have been used in heavy vehicles such as coaches, buses, trucks under conditions such as reducing speed in motorways and trunk roads and braking for prolonged periods during down slope operations. New types of electromagnetic brakes have been under development for lighter vehicles as well. Regular friction brakes have an outstanding and vital load absorbing capability if kept cool. Electromagnetic brakes help friction brakes to retain this capability under all conditions by absorbing energy at a separate location based on a totally different working principle.</p> <p>This report presents the performance of an electromagnetic braking system which includes various components with its cost effectiveness and efficient methodologies to utilize the supplied energy. With the application of the effective and strong electromagnet we can have greater efficient braking system.</p>															
6	TOTAL COST REQUESTED	Rs.1,50,000/-															
7	PROPOSED COST	<table border="1"><thead><tr><th>S.NO</th><th>ITEM</th><th>AMOUNT</th></tr></thead><tbody><tr><td>1</td><td>DESIGN</td><td>60,000</td></tr><tr><td>2</td><td>COMPONENTS</td><td>60,000</td></tr><tr><td>3</td><td>OTHER EXPENSES INCLUDED (CGST+ SGST)</td><td>30,000</td></tr><tr><td></td><td>TOTAL (INR in Lakhs)</td><td>1,50,000</td></tr></tbody></table>	S.NO	ITEM	AMOUNT	1	DESIGN	60,000	2	COMPONENTS	60,000	3	OTHER EXPENSES INCLUDED (CGST+ SGST)	30,000		TOTAL (INR in Lakhs)	1,50,000
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