

PROJECT COMPENDIUM

DEPT. OF MECHANICAL ENGINEERING



NSRIT

AUTONOMOUS

2018 - 2022

Capstone Project Abstract, Findings, Outcomes
(Paper Publications and Online Certification
Course)

List of Projects and Outcomes Addressed (POs)

No.	Name of the Students	Name of the Guide	POs Addressed
1	Dumpa K V Tirumala Reddy., Darmiseti Vinay Prakash., Dammu Sateesh., Dupana Esaku.	Mr. V.V.R. Murthy	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Aerodynamic Analysis of Car Body with Aerodynamic Devices to Improve Performance, International Research Journal of Engineering and Technology, ISSN: 2395-0056, 2022.
2	G.L.Prasanna Kumar., B.Viswanadha Raju., P.Vamsi Krishna., N.Chandra Deep Varma.	Mr. V.V.R. Murthy	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Modification of Bundle Former Piston by Failure Analysis to withstand the Fatigue, International Journal for Modern Trends in Science and Technology 2022, 8(06), pp. 481-484. https://doi.org/10.46501/IJMTST0806083
3	K.Yugandhar., B.Jignas., K.Siva Kumar., Y.Shiva Nandan Reddy.	Mr. K.Abhinash	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Fabrication of Water Heater/Cooler using Refrigeration system, International Journal for Modern Trends in Science and Technology 2022, 8(06), pp. 477-480. https://doi.org/10.46501/IJMTST0806082
4	G. Raja., S. Vinay., U. Ganesh., V. Dilip Varma.	Mr. K. Abhinash	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Fabrication and performance of thermo-electric refrigerator, International Journal of All Research Education and Scientific methods (IJARESM), ISSN: 2455-6211, Volume 10, Issue -2022
5	G.Gayatri., N.Madhu., P.Venkata Sai Ram., P.Harshit Patrudu.	Mr. N. Suneel Kumar	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Design And Fabrication Of Electro-magnetic Braking System, JETIR-Journal of Emerging Technologies and innovative Research, Volume 9, Issue 6, June 2022,
6	Dwarapudi Sai Balaji., Dwarapudi Ashok., Gondesi Gopala Reddy., Gandhi Upendra.	N. Suneel Kumar	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Design and Thermal Analysis on Transformer Fin Using CFD, International Journal of Research in Engineering, Science and Management Volume 5, Issue 6, June 2022
7	Yeswanth Ch., Pavan Sandeep D., Sampanth I., Pavan Kumar S.	Mr. V.V.S.S.R.Krishna Murthy.Ch	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Enhancement of Design and Fabrication of a Composite Automobile Body Based on Integrated Structure and Analysis of Gases using Gas Analyser, International Journal of Modern Trends in Science and Technology, Vol. 08, Issue 06, pp. 213-216, June 2022
8	Naresh B., Guna Sekhar B., Sai Vardhan A.V.P., Vamsi D.	Mr. V.V.S.S.R.Krishna Murthy.Ch	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Enhancement of Design and Fabrication of a Composite Automobile Body Based on Integrated Structure and Analysis of Gases using Gas Analyser, International Journal of Modern Trends in Science and Technology, Vol. 08, Issue 06, pp. 213-216, June 2022
9	Golagani Satish., Pasumarthi Hari Krishna., Pangi Sathish Kumar., Penuganti Lova Raju.	Mr. Kona Ram Prasad	PO #1, PO #2, PO #3, PO #4, PO #5, PO #6, PO #7, PO #8, PO #9, PO #10, PO #11, PO #12, Publication: Design and Fabrication of Multidirectional Rotational Trolley - International Journal for Modern Trends in Science and Technology, Volume 8, Issue 06, June 2022
10	R.Raju., R.Balu., R.Prasad., S.Deva Krishna.	Mr. Kona Ram Prasad	PO #1, PO #2, PO #3, PO #4, PO #5, PO #6, PO #7, PO #8, PO #9, PO #10, PO #11, PO #12, Publication: Fabrication and Experimental Analysis of Heat Sink Fins - International Journal for Modern Trends in Science and Technology, Volume 8, Issue 06, June 2022
11	G. Anvesh., G.Mani Ram., G.Prasanth Kumar., G.Prudhvi.	Mr. Kona Ram Prasad	PO #1, PO #2, PO #3, PO #4, PO #5, PO #6, PO #7, PO #8, PO #9, PO #10, PO #11, PO #12, Publication: Experimental Analysis of Heat Transfer Rate by Applying Ceramic Coating on Metal Surface

	- International Journal for Modern Trends in Science and Technology, Volume 8, Issue 06, June 2022		
12	A. Pravallika., B. Tirupathi Reddy., G. Vinay Varma., D. Vinay Kumar.	Mrs. B.Usha Rani	PO#1,PO#2,PO#3,PO#4,PO#5,PO#6,PO#12 Publication: Design and Fabrication of 3D Printer, International Journal Of Scientific Research In Engineering And Management, Volume 6, Issue 6 , pp. 02 -07 ,2022
13	K.Janaki Rao,Raj gopal Mahata., G.Krupa Raj., P.Kalyan Ram.	Mrs. B.Usha Rani	PO#1, PO#2, PO#3, PO#4, PO#5, PO#6, PO#12 Publication: Evaluation of Metal Foam In Battery Thermal Management System, International Journal of Research and Analytical Reviews (IJRAR), Volume 9, Issue 2 , pp. 703 -709 ,2022
14	K. Hemanth., K. Ramchandrudu., K. Tharakeswaracharyulu. P. Ram Prasad., Ch. Chenchu Ramya.	Mrs. B.Usha Rani	PO#1, PO#2, PO#3, PO#4, PO#5, PO#6, PO#12 Publication: Experimental Investigation of Phase Change Material on Battery Thermal Management System, International Journal of All Research Education and Scientific Methods, Volume 10, Issue 6, pp. 1274 -1280 ,2022
15	Shankar Mukkala., Kumar Raja Seela., Yerra. Arunkumar., Behara Teja., N.Mahesh., B.Sai Ganesh., G.Bhaskar Rao., M.Ganesh.	Dr. P.N.E. Naveen	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Design and Fabrication of Power Generation Through Smart Speed Breakers, International Journal for Modern Trends in Science and Technology, 8(06): 137-140, 2022
16	Kommuri Govinda Sai., P N E Naveen., Korupolu Bharath Kumar., Kothara Naveen.,Pilla Pavan Sai Kumar.	Dr. P.N.E. Naveen	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Design and Fabrication of 360 Degree Flexible Drilling Machine, International Journal for Modern Trends in Science and Technology, 8(06): 230-233, 2022
17	B.Jeevan Kumar., G.Shiva,K.Shyam Sekhar., K.Naveen Subash.	Mr. T T V S R Krishna Kumar	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Design of Water Heater Cum Water Cooler Using Refrigeration System, International journal of Advances in Engineering and Management (IJAEM), Volume 4, Issue 6, pp: 1983-1993 June 2022
18	V.Balaraju., V.Srinivas., V.Swamy., P.Sai Kiran.	Mr. T T V S R Krishna Kumar	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Design And Thermal Analysis Of thermoelectric Battery For energy production, IRJMETS/Certificate/Volume 4/Issue 06/40600066778, June 2022
19	N. Sai Nishanth., Pawan Gopal., P. Devi., B. Nagaraju., S. Dileep Kumar, T. Mohan, B. Yogesh., G. Karthick Varun.	Dr. V. V. Ravi kumar	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Application Design of an Integrated Outdoor Air Quality Monitoring Device Based on Solar power, International Journal of Scientific Research in Engineering and Management (IJSREM), Volume 06 Issue: 06 June - 2022Impact Factor: 7.185 ISSN: 2582-3930
20	Akala Swathi Kiran., Diyya Hemanth Kumar., Kedari Vamsi., Sanjeev Sunil Singh.	Dr. P. N. E. Naveen	PO #1, PO #2, PO #3, PO #4, PO #5, PO#6, PO #9, PO #10, PO #11, PSO #1, PSO#2 Publication: Design and Fabrication of Emergency Braking System, International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-6211 Volume 10, Issue 7, July-2022

List of Online Certification Courses

No.	Name of the Student	Name of the Course	Duration (Hours)	Learning Platform
1	Dumpa K V Tirumala Reddy	CATIA	1.5	Great Learning
2	Darmisetti Vinay Prakash	CATIA	1.5	Great Learning
3	Dammu Sateesh	CATIA	1.5	Great Learning
4	Dupana Esaku	CATIA	1.5	Great Learning
5	G.L.Prasanna Kumar	Determination of the shear strength of unsaturated soils	1:58	Alison
6	B. Viswanadha Raju	Determination of the shear strength of unsaturated soils	1:52	Alison
7	P. Vamsi Krishna	Determination of the shear strength of unsaturated soils	1:40	Alison
8	N.Chandradeep Varma	Determination of the shear strength of unsaturated soils	1:44	Alison
9	K.Yugandhar	Oil in refrigeration and air conditioning systems	50	Alison
10	B.Jignas	Oil in refrigeration and air conditioning systems	50	Alison
11	K.Siva Kumar	Oil in refrigeration and air conditioning systems	50	Alison
12	G. Raja	Cargo Refrigeration and Plant Systems.	0.3	Alison
13	S.Vinay	Cargo Refrigeration and Plant Systems.	0.3	Alison
14	U.Ganesh	Cargo Refrigeration and Plant Systems.	0.6	Alison
15	V.Dilip Varma	Cargo Refrigeration and Plant Systems.	0.4	Alison
16	G.Gayatri	Understanding fabrication and sensors in Automated systems	3.20	Alison
17	P.V.Sai Ram	Plate Heat Exchanger Fundamentals	0.03	Alison
18	N.Madhu	Plate Heat Exchanger Fundamentals	1.2	Alison
19	P.H.Patrudu	Understanding fabrication and sensors in Automated systems	0.6	Alison
20	D.Sai Balaji	CATIA	1.5	Great Learning
21	G.Upendra	CATIA	1.5	Great Learning
22	G.Gopala Reddy	Plate Heat Exchanger Fundamentals	2.40	Alison
23	D.Ashok	CATIA	1.5	Great Learning
24	Yeswanth Ch.	Bearing	20	Tata steel digi
25	Pavan Sandeep D.	Heat treatment	20	Alison
26	Sampanth I.	Bearing	20	Tata steel digi
27	Pavan Kumar S.	Material Analysis	20	Alison
28	Naresh B.	Bearing	20	Alison
29	Guna Sekhar B.	Material Analysis	20	Alison
30	Sai Vardhan A.V.P.	Heat treatment	20	Alison
31	Leeladhar J.	Plate Heat Exchanger Fundamentals	20	Alison

32	Tarun Teja K	Plate Heat Exchanger Fundamentals	20	Alison
33	Satish K.	Heat Exchanger Types & Applications	20	Alison
34	Demudu Babu M.	Plate Heat Exchanger Fundamentals	20	Alison
35	Guttula Prasanth Kumar	Mechanical Engineering – Plate Heat Exchanger Fundamentals	73	Alison
36	Gorli Anvesh	Mechanical Engineering – Plate Heat Exchanger Fundamentals	63	Alison
37	Gudla Maniram	Fundamentals of Solar Collectors	69	Alison
38	Guri Prudhvi Raj	Mechanical Engineering – Plate Heat Exchanger Fundamentals	62	Alison
39	Reddy Prasad	Mechanical Engineering – Plate Heat Exchanger Fundamentals	46	Alison
40	Raju Rangala	Introduction to Python	110	Infosys
41	Rayavarapu Balu	Mechanical Engineering – Plate Heat Exchanger Fundamentals	98	Alison
42	Seera Devakrishna	Mechanical Engineering – Plate Heat Exchanger Fundamentals	22	Alison
43	Hari Krishna	Additive Manufacturing Architecture	31	Alison
44	Satish Kumar Pangi	Mechanical Engineering – Internal Combustion Engine Basics	26	Alison
45	Satish Golagani	Fundamentals of Transportation Management	145	Alison
46	Lovaraju P	Manufacturing Technologies	34	Alison
47	A. Pravallika	3D Printing Encloser	2	Alison
48	B. Tirupathi Reddy	3D Printing Encloser	2.5	Alison
49	G. Vinay Varma	3D Printing Encloser	1.75	Alison
50	D. Vinay Kumar	3D Printing Encloser	1.5	Alison
51	K.Janaki Ram	Heat Exchangers	1.5	Alison
52	Raj Gopal.M	Plate Heat Exchangers Fundamentals	1.5	Alison
53	Kalyan Ram P	Design of Electric Vehicles Batteries	1.5	Alison
54	Krupa Raj G	Plate Heat Exchangers Fundamentals	1.5	Alison
55	K Hemanth	Catia V5 Automotive and Industrial	0.75	Alison
56	P.Ram Prasad	Plate Heat Exchangers	1.5	Alison
57	K.Ram Chandrudu	Plate Heat Exchangers	1.5	Alison
58	Tharakeswaracharyulu.K	Heat Exchanger Types and Applications	1.5	Alison
59	CH.Ramya	Plate Heat Exchangers	1.5	Alison
60	B.Jeevan Kumar	Bearing	20	Tata steel digi
61	G.Shiva.	Heat treatment	20	Alison
62	K.Shyam Sekhar	Bearing	20	Tata steel digi
63	K.Naveen Subash	Material Analysis	20	Alison

64	V.Balaraju.	Bearing	20	Alison
65	V.Srinivas	Material Analysis	20	Alison
66	V.Swamy	Heat treatment	20	Alison
67	Sai Nishanth Nalla	Diploma in Advances in Welding and Joining Technologies	1.20	Alison
68	Bonela Nagaraju	Mechanical Engineering - Plate Heat Exchanger Fundamentals	0.2	Alison
69	Pavan Gopal	Manufacturing Processes - Metalworking	1.04	Alison
70	Dervi. P	Fundamentals of Solar Collectors	2.39	Alison

Aerodynamic Analysis of Car body with Aerodynamic Devices to Improve Performance

V.V.R. Murthy¹., D.K.V. Tirumala Reddy²., D. Vinay Prakash³., D. Sateesh⁴., D. Esaku⁵

Abstract

This research is about analysis of the effects of different Aerodynamic add on devices on the vehicle to reduce drag and make the vehicle fuel efficient. The 3D model is developed in ANSYS Space claim. Computational fluid dynamics (CFD) is performed to understand the effects of these add on devices. CFD is performed in ANSYS Fluent module. Drag Coefficient, lift coefficient, drag force and lift force are calculated and compared. The results are analyzed and it was observed that optimized body has better drag coefficient and lift coefficient which helps improving the fuel economy and stability of the car.

Keywords: Aerodynamics, Drag Coefficient, Lift Coefficient, Computational fluid dynamics, Stream lined body.

Conclusions

Aerodynamics is an important factor to consider while manufacturing a vehicle. Here, in this paper, we created a Stream lined model and analyzed the aerodynamic parameters of the car including the drag produced during high performance. From the analysis performed it is observed that the car with streamlined body's drag is low but there is small amount of lift is generated. But the diffuser model's drag is low and also creates small amount of downforce which increase the grip of the car and provides good traction. This analysis shows the difference between a car with no Aerodynamic devices and car equipped with Aerodynamic devices. The Drag and lift are improved significantly and result will be better fuel efficiency and better highspeed stability.

Publications

1. Aerodynamic Analysis of Car Body with Aerodynamic Devices to Improve Performance by V.V.R. Murthy, D.K.V. Tirumala Reddy, D.Vinay Prakash, D.Sateesh, D.Esaku, International Research Journal of Engineering and Technology, ISSN: 2395-0056, 2022.

Modification of Bundle Former Piston by Failure Analysis to withstand the Fatigue

G.L.Prasanna kumar¹, B.Viswanadhan Raju², P.Vamsi krishna³, N.Chandra deep Varma⁴

Abstract

The project entitled is carried at Visakhapatnam steel plant, in LMMM department. The project aims at analysing the failure causes of bundle former piston unit and enhances the design parameters of working machinery. In my project the emphasis is laid on the failure analysis of bundle former piston rod whose failure will cause the seizure of LMMM for a whole day. The premature failing of bundle former piston rod is analysed by taking the fatigue design considerations, impact – fatigue design consideration. The suitable control measures to reduce failure due to fatigue and the necessary design improvements to be considered to reduce the fatigue are also discussed and suggested. The failure analysis of bundle former piston rod with a detailed study of various reasons regarding the failures. The different approaches of design parameters are considered and suitable regulation is specified. The present work compares the results of the theoretical design calculations against the experimental work.

Keywords: SOLIDWORKS, ANSYS, FATIGUE ANALYSIS

Conclusions

The theoretical considerations but also the most approximate practical calculation by employing finite element analysis software packages ANSYS work bench. The various types of failures on bundle former machine are identified. The root causes for the failure are identified and analysed. The cause is “Fatigue “. The 3-D model of bundle former is developed in solid works software with the help of detailed diagram of individual parts the analysis is discussed and the necessary improvements to alleviate the failures such as

The failure analysis of bundle former piston rod is done by taking not only

1. Modification of design parameters to withstand fatigue
2. Modification of design parameters to alleviate fatigue are proposed.

Publications

1. G.L.Prasanna Kumar, B.Viswanadha Raju, P.Vamsi Krishna and N.ChandradeepVarma. Modification of Bundle Former Piston by Failure Analysis to withstand the Fatigue. International Journal for Modern Trends in Science and Technology 2022, 8(06), pp. 481-484. <https://doi.org/10.46501/IJMTST0806083>

Fabrication of Water Heater/Cooler using Refrigeration system

K Abhinash¹ | B Jignas² | K Siva Kumar³ | K Yugandhar⁴

Abstract

This water heater cum cooler makes the study of water-cooling system using a compressor in Refrigerator system. The main aim in developing this device is to develop a multifunctional unit which can provide both hot water and cold water using the regular refrigeration cycle. The refrigeration cycle is a thermodynamic heat pump cycle which is a conceptual and Mathematical model for heat pump, air conditioning refrigeration systems.

The refrigerant R-22 /F-22 (FLORON – 22) is used as medium which absorbs and removes heat from the water and subsequently rejects the air in the atmosphere. The Main difference between this water cooler & Heater and Traditional water Heater & Cooler used domestically is this comprises of a compressor functioning of this system. Whereas, that Traditional Heater, Cooler has condenses and has 2 switches to combine working & it's a Non – Cyclic process. Their capacity is less. Circuit is different Power consumption is more. This is more effective and controllability is more. Constant refilling of water is necessary.

This is a cyclic process which uses both condenser and evaporator. Water storage space is more. Power consumption is less. Usage is easy usage.

Keywords: Compressor, Refrigerant, Condenser, Evaporator, Accumulator, Water heater/cooler

Conclusions

By using a water cooler and heater you can save 30% of the energy consumed. Besides, this experiment can be used in cooling rooms, offices and halls and also cools water becomes a universally accepted option in India too.

Depending on specific situations, this runs parallel to, compete with or even replace air conditioning system. When that happens the cost of water cooling and air conditioning devices will come down dramatically.

Publications

1. K Abhinash., B Jignas., K Siva Kumar and K Yugandhar. Fabrication of Water Heater/Cooler using Refrigeration system. International Journal for Modern Trends in Science and Technology 2022, 8(06), pp. 477-480. <https://doi.org/10.46501/IJMTST0806082>

Fabrication and performance of thermo-electric refrigerator

K Abhinash¹ | G. Raja² | V.D Varma³ | U.Ganesh⁴ | S.Vinay⁵

Abstract

The impact of ongoing progress in science and technology has created a variety of systems that can be used in producing of refrigeration effect with the use of Thermo-Electric module for generation of energy which we further use for cooling and heating effect. Thermo-Electric Refrigerator is a solid-state heat pump which uses the components are available commercially. The Thermo-Electric refrigerator does not produce chlorofluorocarbons (CFC).

Keywords: Refrigeration, cooling and heating effect

Conclusion

The COP of performance of this refrigerator is much smaller than the that of a conventional compressor-type refrigerator when the required cooling capacity is high, whereas the coefficient of performance of the conventional unit falls off rapidly as the cooling capacity is decreased and that thermos electric unit remains constant .Thus conventional refrigerator is preferred when the required cooling capacity is high and thermoelectric refrigerator should be chosen when the low cooling capacity is needed. As the cooling units are of small size, silent, contains no liquid or gases, have no moving parts and have a long life. It is very simple to control the rate of cooling by the adjustment of the current, the response to changes in the supply is very rapid, while reversal of direction of the current transforms a cooling circuit into a heater with a coefficient of performance in excess of unity i.e., a heat pump for oven. In this work, a portable compressor less refrigerator unit was fabricated and tested for the cooling purpose. This completely eco-friendly project Multipurpose and portable.

Publications

1. K Abhinash., G. Raja., V. D Varma., U.Ganesh., S.Vinay. Fabrication and performance of thermo-electric refrigerator, International Journal of All Research Education and Scientific methods (IJARESM), ISSN: 2455-6211, Volume 10, Issue -2022

DESIGN AND FABRICATION OF ELECTROMAGNETIC BRAKING SYSTEM

N.Suneel Kumar¹, G.Gayatri², N.Madhu³, P.Venkata Sai Ram⁴, P.Harshit Patrudu⁵

Abstract

An electromagnetic brake is a new and revolutionary concept. These are totally frictionless. Electromagnetic brakes are the brakes working on the electric power & magnetic power. An Electromagnetic Braking system uses Magnetic force to engage the brake, but the power required for braking is transmitted manually. Electromagnetic braking system is a modern technology braking system used in light motor & heavy motor vehicles. This system is a combination of electro-mechanical concepts. The frequency of accidents is now-a-days increasing due to inefficient braking system. The concept helps in reducing or eliminating sources of heat generation, friction, noise, and wear of materials. There is no involvement of fluids as used in hydraulic braking systems. Each coil is separately spaced evenly on both the outer and inner array of field coils. The disc is connected to a shaft and the electromagnet is mounted on the frame. When electricity is applied to the coil a magnetic field is developed across the armature because of the current flowing across the coil and causes armature to get attracted towards the coil. As a result, it develops a torque and eventually the vehicle comes to rest.

Keywords: Electro Magnetic

Conclusions

The Electromagnetic braking system is found to be more reliable as compared to other braking systems. In addition, it is found that electromagnetic brakes make up approximately 80% of all of the power applied brake applications. Electromagnetic brakes have been used as supplementary retardation equipment in addition to the regular friction of the brakes. This enhanced braking system not only helps in effective braking but also helps in avoiding the accidents and reducing the frequency of accidents to a minimum. Furthermore, the electromagnetic brakes prevent the danger that can arise from the prolonged use of brake beyond their capability to dissipate heat. ABS usage can be neglected by simply using a micro controlled electromagnetic disk brake system. These electromagnetic brakes can be used in wet conditions which eliminate the anti-skidding equipment, and cost of these brake are cheaper than the other types. The concept designed by us is just a prototype and needs to be developed more. It can not only be used in the field of automobiles but also in the field of aeronautics. Hence the electromagnetic braking system can be a better technological revolution in the future applications.

Publications

1. N.Suneel Kumar., G.Gayatri., N.Madhu., P.Venkata Sai Ram., P.Harshit Patrudu. Design And Fabrication Of Electromagnetic Braking System. ETIR-Journal of Emerging Technologies and Innovative Research June 2022, Volume 9, Issue 6

Design and Thermal Analysis on Transformer Fin Using CFD

Dwarapudi Sai Balaji¹, Dwarapudi Ashok², Gondesi Gopala Reddy³, Gandhi Upendra⁴, Nakka Suneel Kumar⁵

Abstract

The design problem considers minimization of the short circuits and explosions due low heat reduction through fins. The transformer design involves the optimum transfer of heat through fins to minimize the leakage field, short circuits and explosions. While designing the transformer, original dimensions of the transformer should be taken and not consider the before used materials of manufacturing the transformer. The design of transformer involves in considering the two different materials one is alumina 96% and another one is structural steel to get the temperature distribution and temperature changes within the transformer by giving the boundary conditions of transformer including atmospheric temperature. Then compare both the materials with present used material of the transformer using software analysis. Then choosing the best material for better heat reduction (to atmosphere) through the fins (extended surface) of transformer. The results of comparing these two different materials on the transformer is that the mild steel has better strength and good temperature capacity for high capacity of transformers than the aluminum. Results based on equivalent stress, static deformation and natural frequencies shows that mild steel transformer performed better in that it has high strength and good temperature bearing capacity and will deflect far less than aluminum. The aluminum materials are assigned to the transformer body and fins will become melts and damaged because aluminum has low strength and low temperature bearing capacity than the mild steel material. So that aluminum is used only for low heat sink or rejection of the fins. Mild steel is better suited for the high temperature holding transformer because mild steel is more rigid. These structural analysis results are gained through experimental work. These structural analysis results are gained through experimental work. These structural analysis results are gained through experimental work

Keywords: Transformer fin.

Conclusions

This paper presented design and thermal analysis on transformer fin using CFD.

Publications

1. N.Suneel Kumar.,G.Gayatri., N.Madhu., P.Venkata Sai Ram.,P.Harshit Patrudu., Design and Thermal Analysis on Transformer Fin Using CFD. JETIR-Journal of Emerging Technologies and innovative Research June 2022, Volume 9, Issue 6

Enhancement of Design and Fabrication of a Composite Automobile Body Based on Integrated Structure

Yeswanth Ch¹., Pavan Sandeep D²., Sampanth I³., Pavan Kumar S⁴.

Abstract

In this project we have designed and fabricated a Composite Automobile Body Based on Integrated Structure by our self interest based racing car model. The Design of the car was carried out using CATIA software and the analysis is done by using ANSYS Software. The car was fabricated in one of our laboratories at our Institute. The car has been tested for its performance.

Keywords: Composites, CATIA, Ansys

Conclusions

Design and fabrication of Composite automobile vehicle on integrated structure were reported in this project work. From this we have learned design, fabrication and testing of real automobile. This project work helps us in the opportunity to apply theories they have learnt, as well as exposure to practice work and challenges. The use of CATIA has helped us in higher quality design. We have also experienced real situation and challenge from design stage until fabrication of a real car. Finally the car was tested on-track to evaluate its capability and performed gas analyzer test.

Publications

1. Yeswanth Ch., Pavan Sandeep D., Sampanth I., Pavan Kumar S. Enhancement of Design and Fabrication of a Composite Automobile Body Based on Integrated Structure and Analysis of Gases using Gas Analyzer, International Journal of Modern Trends in Science and Technology, Vol. 08, Issue 06, pp. 213-216, June 2022

Enhancement of Design and Fabrication of a Composite Automobile Body Based on Integrated Structure and Analysis of Gases Using Gas Analyser

Naresh B¹., Guna Sekhar B²., Sai Vardhan A.V.P³., Vamsi D⁴.

Abstract

In this project we have designed and fabricated a Composite Automobile Body Based on Integrated Structure by our self interest based racing car model. The Design of the car was carried out using CATIA software and the analysis is done by using ANSYS Software. The car was fabricated in one of our laboratories at our Institute. The car has been tested for its performance.

Keywords: Composites, CATIA, Ansys, Gas analyzer

Conclusions:

Design and fabrication of Composite automobile vehicle on integrated structure were reported in this project work. From this we have learned design, fabrication and testing of real automobile. This project work helps us in the opportunity to apply theories they have learnt, as well as exposure to practice work and challenges. The use of CATIA has helped us in higher quality design. We have also experienced real situation and challenge from design stage until fabrication of a real car. Finally the car was tested on-track to evaluate its capability and performed gas analyzer test.

Publications

1. Naresh B., Guna Sekhar B., Sai Vardhan A.V.P., Vamsi D. Enhancement of Design and Fabrication of a Composite Automobile Body Based on Integrated Structure and Analysis of Gases using Gas Analyser, International Journal of Modern Trends in Science and Technology, Vol. 08, Issue 06, pp. 213-216, June 2022

Design and Fabrication of Multidirectional Rotational Trolley

Kona Ramprasad¹ | Golagani Satish² | Pasumarthi Hari Krishna³ | Pangi Sathish Kumar⁴ | Penuganti Lova Raju⁵

Abstract

Normal dumper vehicle unload materials only in one direction that too only at the backside of the tipper trolley by using various powerful hydraulically operated cylinders, which may cause the problems of blockage when the work area is limited. The Multidirectional dumper overcomes the problem of unloading the vehicle on side way by using Pneumatic cylinder used in our prototype but hydraulic cylinder would have to be used in a standard vehicle. By using cylinder and Geneva mechanism the material can be unloaded in as per requirement. However, the Multidirectional dumper is developed and tested for its rotation in all 360° possible angle to unload the materials in the tipper trolley and monitor the inclinations for its gradualism by using Geneva mechanism.

Keywords: 360 degrees trolley, Prototype hydraulic cylinder and truck.

Conclusions

- The rotation of multidirectional trolley is successfully achieved by using Geneva mechanism and by using pneumatic cylinder.
- The developed prototype exhibits the expected results. Further modifications in this developed setup will put this work in the main league of use.
- This concept saves time & energy which leads to efficient and effective working.
- This further line should be modelled using equations and an experimental agreement. The constructional work or the infrastructural work demands.

Publications

1. Kona Ramprasad., Golagani Satish., Pasumarthi Hari Krishna., Pangi Sathish Kumar., Penuganti Lova Raju. Design and Fabrication of Multidirectional Rotational Trolley - International Journal for Modern Trends in Science and Technology, Volume 8, Issue 06, June 2022

Fabrication and Experimental Analysis of Heat Sink Fins

Kona Ram Prasad¹ | R.Raju² | R.Balu³ | R.Prasad⁴ | S.Deva Krishna⁵

Abstract

In this project we had fabricated the different types of fins like circular and square. This fins made up of aluminium because it is low cost and high heat transfer rate. The experiment is carried out on fins test rig. We took the different temperatures of fins with help of this test rig and the results of this fins has been compared with efficiency and heat transfer rate. Finally, we want to conclude that which fin has high rate heat transfer and efficiency.

Keywords: Fins, heat transfer

Conclusions

We successfully concluded and when we compared to square fin with the circular fin the heat transfer in square fin is high also they are made up of aluminium because it is low in cost and weight and it is easily available. The rate of heat transfer increases with the increase in surface area of the fin. Thus the results of rate of heat transfer and efficiency is high in the square fin.

Publications

1. Kona Ram Prasad, R.Raju., R.Balu., R.Prasad., S.Deva Krishna. Fabrication and Experimental Analysis of Heat Sink Fins - International Journal for Modern Trends in Science and Technology, Volume 8, Issue 06, June 2022

Experimental Analysis of Heat Transfer Rate by Applying Ceramic Coating on Metal Surface

Kona Ram Prasad¹ | G. Anvesh² | G.Mani Ram³ | G.Prasanth Kumar⁴ | G.Prudhvi⁵

Abstract

In this project we have study the heat transfer analysis of ceramic coating applied on stainless steel metal surface. The experiment is carried out emissivity test rig. The coating technique is used by Plasma Electrolysis Oxidation (PEO). The result has been compared to the pure stainless steel and ceramic coated stainless steel with reference of the black body.

Keywords: stainless steel, ceramic coating, Plasma electrolysis oxidations, heat transfer rate, Emissivity.

Conclusions

We successfully concluded that when compared to Ceramic Coated Aluminium Oxide on Stainless Steel plate and without coated Stainless Steel plate, the result of rate of Heat Transfer Rate and also Emissivity is low while applying 10 Microns of coating, so when we increase the thickness of ceramic coating there is much chances of getting a better result. The lower Emissivity value comparison indicates that, there is store of heat in the ceramic plate, the emission of heat is high in non-coated plate (SS). The storing of heat energy present inside body this makes to improve the efficiency of the system, when there is a need of reduce heat loss like automobile engines, exhaust manifolds, headers, Boiler, Turbo Charger, Microwave ovens etc, it makes the useful, it's not only increases the Efficiency but also acts for protecting automobile parts from degradation of material composition due to friction that occurs during parts movement. Ceramic coatings doesn't stick to the surface of the metal like paint; the ceramic coating bonds with the material of the parts. Due to this, it's a tough coating and doesn't flake easily.

Publications

1. Kona Ram Prasad., G. Anvesh., G.Mani Ram., G.Prasanth Kumar., G.Prudhvi. Experimental Analysis of Heat Transfer Rate by Applying Ceramic Coating on Metal Surface - International Journal for Modern Trends in Science and Technology, Volume 8, Issue 06, June 2022

Design and Fabrication of 3D Printer

B. Usha Rani¹, A. Pravallika², B. Tirupathi Reddy³, G. Vinay Varma⁴, D. Vinay Kumar⁵

Abstract

3D printing is called as desktop fabrication. It is a process of prototyping where by a structure is synthesized from a 3d model. The 3d model is stored in as a STL format and after that forwarded to a 3D printer. It can use a wide range of materials such as ABS, PLA, and composites as well. 3D printing is a rapidly developing and cost optimized form of rapid prototyping. The 3D printer prints the CAD design layer by layer forming a real object. 3D printing process is derived from inkjet desktop printers in which multiple deposit jets and the printing material, layer by layer derived from the CAD 3D data.

Keywords: 3D printing, Rapid Prototyping, ABS, PLA

Conclusions

The following recommendations can be considered for the improvement in the field of 3D printer hot end. While using the hot end assembly one should definitely use dedicated cooling fan to get the best effective results and it will avoid the plastic to clogging and jamming in the hot end. Not all technical information about 3D printing could be shared in this introduction of the subject. Documenting the technology, very much a work-in-progress, must also recognize that not all authors agree on the likelihood of 3D printing gaining wider dissemination into the home so individuals. Also, as a still emerging technology, 3D printing is not without its problems, such as slow printing speeds.

Publications

1. B. Usha Rani., A. Pravallika., B. Tirupathi Reddy., G. Vinay Varma., D. Vinay Kumar. Design and Fabrication of 3D Printer, International Journal of Scientific Research in Engineering and Management, Volume 6, Issue 6, pp. 02-07, 2022

Evaluation Of Metal Foam In Battery Thermal Management System

B. Usha Rani¹, K. Janaki Rao², Rajgopal Mahata³, G. Krupa Raj⁴, P. Kalyan Ram⁵

Abstract

Batteries, especially lithium-ion ones, are the main energy sources of electric vehicles. In order to remove the generated heat in these batteries, passive cooling systems such as those employing phase change materials (PCMs) can be used, without any energy consumption. The main drawback of conventional PCMs is their low thermal conductivity, which can be solved by adding conductive additives to pure PCM. In this study, nine passive battery thermal management systems (BTMSs) based on paraffin wax as pure PCM, and copper foam as conductive additive, but with nine different amounts (from 1 to 9 volume%), are numerically simulated to reveal the role of additive content. The results show that the addition of metal foam greatly influences the time evolution of PCM liquid fraction. It is turned out that the addition of 6 volume% copper foam can create the best cooling effect and preserves the cell in the desired temperature range. In fact, adding more than this value can significantly reduce the heat absorption capacity of BTMS and makes the BTMS unreliable.

Keywords: Conjugate heat transfer · Porous media · Battery thermal management system (BTMS) · Li-ion battery · Phase change materials (PCMs)

Conclusions

The outcomes reveal that adding 1–6% of copper foam to the pure paraffin wax moderately increase the liquid fraction in a manner that PCM can still absorb sufficient heat from the battery cell. However, when the PCM contains greater volume fraction of copper foam (7–9%), the liquid fraction of PCM rises significantly to more than 85%, which demonstrates an ineffective thermal management; because, PCM cannot use its capability of heat absorption during the melting process. Hence, it is not reliable to add more than 6% copper foam to this BTMS; i.e., the addition of 6% copper foam addition is the optimal addition for such BTMSs based on paraffin wax and with 15 mm thickness.

Publications

1. B. Usha Rani., K. Janaki Rao., Raj gopal Mahata., G. Krupa Raj., P. Kalyan Ram. Evaluation Of Metal Foam In Battery Thermal Management System, International Journal of Research and Analytical Reviews (IJRAR), Volume 9, Issue 2, pp. 703 -709, 2022

Experimental Investigation of Phase Change Material on Battery Thermal Management System

B. Usha Rani¹, K. Hemanth², K. Ramchandrudu³, K. Tharakeswaracharyulu⁴, P. Ram Prasad⁵, Ch. Chenchu Ramya⁶

Abstract

Electric vehicles (EV) develop fast and have become popular due to their zero emission and high tank-to-wheels efficiency. However, some factors limit the development of the electric vehicle, especially performance, cost, lifetime and safety of the battery. Therefore, the management of batteries is necessary in order to reach the maximum performance while operating at various conditions. The battery thermal management system (BTMS) plays a vital role in the control of the battery thermal behavior. In this study, the paraffin (PCM) was prepared and characterized. And then the PCM have been applied in the LiCoO₂ battery module for experimental research. Different discharge rate and pulse experiments were carried out at various working conditions, including room temperatures (25°C) and high temperature (350°C). Testing result indicated that PCM cooling system can control the peak temperature under 40 °C. The results exhibit that PCM cooling in battery thermal management has promising advantages over traditional air cooling.

Keywords: Aluminum, Battery Thermal Management System, paraffin, PCM

Conclusions

The paraffin was applied to battery module for thermal management in this study. Thermal performance, including latent heat, thermal conductivity and temperature distribution curve were carried out, respectively. The battery module is investigated at different discharge rates under various conditions. The conclusion was summarized based on the experimental results as follows: It's clearly understood that cooling of electric vehicle batteries using Paraffin as the Phase Change Material has turned out to be one of the effective methods for Battery Thermal Management System. The experimental results also show that temperature is uniform throughout the cells after certain period of time which ensures the Temperature Uniformity among the cells of the battery.

Publications

1. B.Usha Rani., K. Hemanth., K. Ramchandrudu., K. Tharakeswaracharyulu. Experimental Investigation of Phase Change Material on Battery Thermal Management System, International Journal of All Research Education and Scientific Methods, Volume 10, Issue 6, pp. 1274 -1280, 2022

Design and Fabrication of Power Generation Through Smart Speed Breakers

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Abstract

It is very significant to design pollution free energy generation system. Speed breaker Power Generator (SBPG) is the most emerging technique which produces electrical power with minimum input.

- ❖ An experimental study to generate the electricity by SBPG is described in this paper.
- ❖ In this system, a Rack and pinion mechanism is used for the production of electricity.
- ❖ The rotary motion is transferred to DC generator which generates DC power which is stored in batteries same as in solar technology.
- ❖ The generated power can be used for the domestic purpose or commercially, which are present near the speed breaker.

We can tap the energy generated and produce power by using the speed breaker as power generating unit. It is observed that the generated voltage is directly proportional to the angular speed of the generator gear. The renewable sources of energy become more popular because of nonpolluting and easily available from the nature. In this paper it is mainly focused on the working of the newly developed rack and ratchet (pinion) mechanism which is used to develop the power from speed breakers, its practical implementation. It generates about 43 watts from one push of 65 kg weight. which can convert into electric energy by generator and later stores in batteries. In this particular study gear, rack and pinion were used for fabrication of the experimental setup. Contact stresses of rack and spur gear were analyzed under static loading and finite element analysis.

Keywords: Speed Breaker, Kinetic Energy, Rotational induction, Boost converter, renewable energy, Rack and pinion mechanism, Finite element analysis, Generator, Passenger Car.

Conclusions

As day by day power consumption increases but electric crisis occur. So the minor needs of electricity such as street lights and traffic signals can be generated from speed breakers. Instead of wasting kinetic energy of vehicles at speed breakers the minor needs can be met by converting kinetic energy to electrical energy

Publications

1. P N E Naveen., Shankar Mukkala., Kumar Raja Seela, Yerra., Arunkumar, Behara Teja., N.Mahesh, B.Sai Ganesh., G.Bhaskar Rao and M.Ganesh. Design and Fabrication of Power Generation Through Smart Speed Breakers. International Journal for Modern Trends in Science and Technology 2022, 8(06), pp. 137-140. <https://doi.org/10.46501/IJMTST0806020>

Design and Fabrication of 360 Degree Flexible Drilling Machine

Kommuri Govinda Sai¹, P N E Naveen², Korupolu Bharath Kumar³, Kothara Naveen⁴, Pilla Pavan Sai Kumar⁵

Abstract

Drilling is a cutting and material removal process in which holes are made with the help of a drill bit, often multi-point cutting tool. Drilling process involves, the drill bit to rotate at high rpm (revolutions per minute) against the surface of the workpiece. Thus, the unwanted part will be drilled, and the material will be drawn from the hole in the form of chips along the shank. Therefore, Drilling machine is one of the machines which is very important and is the heart of an industry. It minimizes the number of machines required and human fatigue is also minimized. With the contrast of this machine, we can drill in any direction at any angle with minimized human effort. The machine is mounted on a flat surface which is supported by legs. In this drilling machine we have used rack and pinion mechanism to move the drill in different angles, so the machine can work in less space with efficiency. Multiple operations can be done by changing the tool in the tool holder. This machine can also be used in automation.

Keywords: Drilling, Material Removal rate, Multipoint cutting tool.

Conclusions

Therefore, by using this 360 Degree Flexible Drilling Machine which is very compact, thick and massive workpieces can easily be drilled without moving the workpiece. It utilizes the power from a battery which reduces the overall operational cost. Due to the usage of the battery as the power source, this machine is portable, easy to carry, and easy to maintain. Lubrications costs are also reduced since it has fewer moving parts thereby reducing the overall maintenance cost of the machine. The rack and pinion mechanism of the machine makes the arm elongate or shorten according to the requirement. Various operations can also be performed on the workpiece rather than drilling by changing the tool inside the tool holder which minimizes the human effort significantly. Therefore, the machine is very affordable with quality performance.

Publications

1. Kommuri Govinda Sai., P N E Naveen., Korupolu Bharath Kumar., Kothara Naveen and Pilla Pavan Sai Kumar. Design and Fabrication of 360 Degree Flexible Drilling Machine. International Journal for Modern Trends in Science and Technology 2022, 8(06), pp. 230-233. <https://doi.org/10.46501/IJMTST0806039>

DESIGN OF WATER HEATER CUM WATER COOLER USING REFRIGERATION SYSTEM

B.Jeevan Kumar¹, G.Shiva,K.Shyam Sekhar², K.Naveen Subash³

Abstract

The purpose of this study is to use water cooler and water heater to improve the convenience of the user so that they can use the water cooler and mobile water heater properly and comfortably. This study focuses on how refrigeration and water heaters use thermoelectric pads as a cooling and heating medium. Peltier works when the voltage is flowing from the power bank. The temperature difference on the surface of the processor allows the heat to occur at a fast rate. Arduino uno is used as a voltage regulator and temperature sensor to improve product performance. concept designs are designed, created and evaluated. The final prototype will include some markers that will be used as temperature readings by cooling and heating. Based on the results shown, the prototype can achieve the desired result with optimized energy consumption. When the temperature supplier produces a good temperature, the amount of water temperature will rise and the heat in the water will reach thermal equilibrium until the cold and hot temperatures reach a better minimum. Therefore, the temperatures in the cold and hot areas are more efficient in achieving thermal equilibrium in rising water.

Keywords: CATIA, Ansys

Conclusions

Depending on specific situations, this run parallel to, compete with or even replace air conditioning system. When that happens the cost of water cooling and air conditioning devices will come down dramatically. Through the temperature tested, we can find that, the cooling temperature would increase slowly after reaching a minimum of 24°C, while the heating temperature would increase slowly after reaching a minimum of 31.5°C. This causes both temperatures to flow into the container more effectively.

Publications

1. T.Krishna Kumar., B.Jeevan Kumar., G.Shiva,K.Shyam Sekhar., K.Naveen Subash. Design Of Water Heater Cum Water Cooler Using Refrigeration System, International journal of Advances in Engineering and Management (IJAEM), Volume 4, Issue 6, pp: 1983-1993 June 2022

DESIGN AND THERMAL ANALYSIS OF THERMOELECTRIC BATTERY FOR ENERGY PRODUCTION

V.Balaraju¹, V.Srinivas², V.Swamy³, P.Sai Kiran⁴.

Abstract

In this project considered different types of geometries such as rectangular-leg, trapezoidal-leg, Y-leg, I-leg and X-leg, for P-N-Module all based on the irrespective shape structures along with different top and bottom contact plates such as magnesium alloy, copper alloy, aluminum alloy all based on their respective thermal properties to Optimizing the module with respect to input parameters for maximum output parameters like current density, voltage flux, temperature distribution, and remaining output parameters using Ansys-21 software

Keywords: Different shaped legs, top and bottom contact plate materials like magnesium, copper and aluminium alloy, Ansys

Conclusions

In this analysis project uses different geometries such as rectangular-leg, trapezoidal-leg, Y-leg, I-leg and X-leg, all based on their respective shape structures along with different contact materials. From the study, the variable cross-sectional inclusion was found to influence the performance of the convectional rectangular-leg significantly, such that the X-leg produced around 19.13% higher power density than conventional geometry and was comparatively more effective in all configurations.

Publications

1. V.Balaraju., V.Srinivas., V.Swamy., P.Sai Kiran. Design And Thermal Analysis Of thermoelectric Battery For energy production, IRJMETS/Certificate/Volume 4/Issue 06/40600066778, June 2022

Application Design of an Integrated Outdoor Air Quality Monitoring Device Based on Solar Power

V. V. Ravi kumar¹, N. Sai Nishanth², Pawan Gopal³, P. Devi⁴, B. Nagaraju⁵,
S. Dileep Kumar⁶, T. Mohan⁷, B. Yogesh⁸, G. Karthick Varun⁹,

Abstract

Pollution has rocked the world with skyrocketing pollution levels. Though the long-term solution to the pollution problem lies in finding and minimizing pollution sources, we need to bring the current pollution levels under control by the time. The best way of controlling pollution is by using air purifiers. But regular indoor air purifiers are small low power devices that don't possess enough purifying capability needed for outdoor spaces. Along with this there is also an issue of power supply in outdoor machines. So here we design a heavy-duty outdoor air purifier that is made for outdoor purification along and powered by solar panels so it is energy independent. Our solar air purifier consists of a heavy-duty suction fan that pulls air from the bottom of the purifier through a layer of HEPA and Carbon filters for elimination of PM 10 PM 2.5 pollutants as well as gases.

Keywords: Outdoor Solar Air Purifier, Hepa Air Filter, Solar Panel.

Conclusions

Now we have seen that how efficient is SOLAR POWERED AIR PURIFIER than other type of device available in market.

- ❖ It also very economical and do not have to replace any component quickly.
- ❖ It reduces particulate level to satisfactory position where a person does not need to worry about pollution related problems.
- ❖ A pure and clean air is right of a human being and all other living creatures on this earth and this project is a small effort from our side to give the all their right.
- ❖ Also in future, modifications can be made to improve working efficiency without effecting setup.

Publications

1. N. Sai Nishanth., Pawan Gopal., P. Devi., B. Nagaraju., S. Dileep Kumar, T. Mohan, B. Yogesh., G. Karthick Varun. Application Design of an Integrated Outdoor Air Quality Monitoring Device Based on Solar power, International Journal of Scientific Research in Engineering and Management (IJSREM), Volume: 06 Issue: 06 | June - 2022 Impact Factor: 7.185, ISSN: 2582-3930

Design and Fabrication of Emergency Braking System

Akala Swathi Kiran¹, Diyya Hemanth Kumar², Kedari Vamsi³, Sanjeev Sunil Singh⁴, Dr. P. N. E. Naveen⁵

Abstract

The general public, policymakers and the automobile industry have developed a growing amount of interest in automotive safety. This paper introduces a cost-effective crash warning system concept for low-budget cars. Rear-end crashes are typical crash situations, and driver fatigue is a major cause of such incidents and therefore does not respond on time. No security program is a substitution for the most critical safety device of any driver's car. Another such feature is Collision Warning with Automatic Braking where the area in front of the car is constantly tracked with the aid of the long-range sensor and driver is alert in the case of a collision and with the brake assist for collisions with other cars, both driving and stationary. Additionally, if the driver fails to respond given the warning and the potential collision is considered inevitable; brakes are automatically applied to stop the vehicle. This helps to reduce the level of effect and therefore the chance of repercussions. Finally, it was discussed how, using traffic incident data, the utility of these programs can be measured from the real-life safety viewpoint.

Keywords: Crash, Arduino Ultrasonic System, Automatic Braking system.

Conclusions

The automated collision warning system with the braking system provides substantial transport benefits in terms of protection, performance, affordability and accessibility and the environment in order to achieve its growth objectives. This aims to reduce the number of fatalities due to fatal injuries. Automatic crash detection with a braking mechanism is a complex large-scale control device, the architecture of which involved developments in sensor, actuator and communication technology and control system synthesis and analysis techniques. This cost-effective way of notification of crashes, along with automatic braking, can also be made applicable to low-cost vehicles, which can result in a major decrease in the death rate due to accidents. Furthermore, simulation results have demonstrated the practicability of developing a DSP based neuro-fuzzy controller for implementing an intelligent braking system with fast response characteristic. It is expected that when this new system is completely developed it would be more efficient, robust and cost effective.

Publications

1. Akala Swathi Kiran., Diyya Hemanth Kumar., Kedari Vamsi., Sanjeev Sunil Singh., Dr. P. N. E. Naveen. Design and Fabrication of Emergency Braking System, International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-6211 Volume 10, Issue 7, July-2022