



*International Research Journal Of Modernization
in Engineering Technology and Science*

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

e-ISSN: 2582-5208

Ref: IRJMETS/Certificate/Volume 06/Issue 04/60400157514

Date: 19/04/2024

Certificate of Publication

This is to certify that author “*Prof. R.R. Bhuvad*” with paper ID
“*IRJMETS60400157514*” has published a paper entitled “*EFFICIENT
DATA STORAGE MANAGEMENT AND REDUCING
DEDUPLICATION IN CLOUD COMPUTING*” in *International
Research Journal Of Modernization In Engineering Technology And
Science (IRJMETS), Volume 06, Issue 04, April 2024*

A. Desai

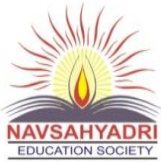
Editor in Chief



We Wish For Your Better Future

www.irjmets.com





NAVSAHYADROI EDUCATION SOCIETYS GROUP OF INSTUITUTIONS
FACULTY OF ENGINEERING, NAIGAON, PUNE

A.Y. 2023-24

IRE
JOURNALS

**ICONIC RESEARCH AND ENGINEERING
JOURNALS**

[An International Open Access, Peer-reviewed, Refereed Journal]

Certificate of Publication

The board of IRE Journals
is hereby awarding this certificate

PROF. DHANASHRI A. GORE

In recognition of the publication of the paper entitled

**UNLOCKING THE BRAIN'S POTENTIAL: A JOURNEY THROUGH
NEUROTECHNOLOGY'S INNOVATIONS**

Publication In e-Journal

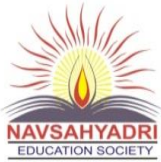
VOLUME 7 ISSUE 9 MAR2024

PAPER ID :-1705627

Dhaval Bhatt
EDITOR IN CHIEF

ICONIC RESEARCH AND ENGINEERING JOURNALS

Website : www.irejournals.com | Email ID : irejournals@gmail.com | ISSN : 2456 - 8880



NAVSAHYADROI EDUCATION SOCIETYS GROUP OF INSTUITUTIONS
FACULTY OF ENGINEERING, NAIGAON, PUNE

A.Y. 2023-24

IRE JOURNALS **ICONIC RESEARCH AND ENGINEERING JOURNALS**

[An International Open Access, Peer-reviewed, Refereed Journal]

Certificate of Publication

The board of IRE Journals
is hereby awarding this certificate

PROF. PUNAM SHINDE

In recognition of the publication of the paper entitled

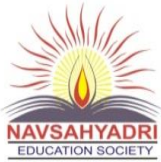
NEUROEVOLUTION IN ARTIFICIAL INTELLIGENCE

Publication In e-Journal
VOLUME 7 ISSUE 8 FEB 2024

PAPER ID :-**1705504**

Dhaval Shatt
EDITOR IN CHIEF

ICONIC RESEARCH AND ENGINEERING JOURNALS
Website : www.irejournals.com | Email ID : irejournals@gmail.com | ISSN : 2456 - 8880



NAVSAHYADROI EDUCATION SOCIETYS GROUP OF INSTUITUTIONS
FACULTY OF ENGINEERING, NAIGAON, PUNE

A.Y. 2023-24



Pramana Research Journal

An ISO : 7021 - 2008 Certified & Peer Reviewed Journal

ISSN NO: 2249-2976 / web : www.pramanaresearch.org / e-mail : pramanaresearchjournal@gmail.com

Address : B/11 - 157, Katraj-Dehu Road, Pune, India.

CERTIFICATE OF PUBLICATION

This is to certify that the paper entitled

Certificate ID : PRJ/2201

Cyber AI: Empowering Cybersecurity through Artificial Intelligence

Authored by

Punam Shinde, Professor

From

Navsahyadri Group of Institutions Faculty of Engineering, A/p Naigoan Tal: Bhor Dist.: Pune Pincode: 412213

Has been published in

PRAMANA RESEARCH JOURNAL, VOLUME 14, ISSUE 07, JULY- 2024



Y Deepak Sen
Dr. Y. Deepak Sen
Editor-In-Chief
PRJ JOURNAL
www.pramanaresearch.org



A.Y. 2023-24





Mecanum Wheel: An Emerging Trend for Material Handling Equipment in Industries

Prof. S. V. Tawade¹

Sanket Tambe², Rutik Thakur³, Ajay Duduskar⁴, Mukund Galkwad⁵, Ganesh Ghogare⁶

Assistant Professor, Navsahyadri Group of Institutes, College of Engineering, Pune, India¹

B.E. Students, Navsahyadri Group of Institutes, College of Engineering, Pune, India²⁻⁶

Abstract: The present automobile industries need execution of industrial robots due to standard in mass and batch size production of the vehicles. Design of omnidirectional vehicles is now a traditional way in automobiles sector. The operating advantage of this kind of vehicle is on any kind of surface such as a rough, smooth, flat, and curved surface. A vehicle has the potential to get omnidirectional, if it operated on mecanum wheel. By providing the omnidirectional ability vehicle has moving flexibility that such type of vehicle can work in any internal and external application. In present paper design and different applications of mecanum wheel for omnidirectional vehicle has been presented. Different design and fabrication and manufacturing steps are discussed.

Keywords: Omni-Directional Mobile Robot, Mecanum Wheel & Autonomous System

I. INTRODUCTION

The mecanum wheel was originated by Bengt in 1975 from Sweden. It is based on the theory that center wheel is placed in between the number of rollers around its periphery at an angle. A normal force is translated in the direction of the wheel by the peripheral roller. The resultant force is developed by the individual elements of the roller, which in turn move freely without changing the direction of the wheel. In the present automation world, the demand for industrial robots are increasing. Many processes service industries are using mobile or moveable robots for transmitting of raw material of finished product from one place to another place. It is observed that uses of industrial robots are common due to the reason of saving in time and money in transportation. The advantage of the omnidirectional robot is that it can move independently as well as work in three degrees of freedom. An omnidirectional vehicle can increase its movability in an effective manner. Although, it is a challenging task to apply mobile robots in many industrial sectors like cement industry, automobile industry, aerospace industry and defence organization. This industry required high skills and high movability at the same time. Manufacturing of different parts in such type of industries requires high labour cost as well as complexity in operation. They designed the mecanum wheel with the set of standard formulas. The wheels were designed for educational purposes and as a prototype for a possible larger model [1]. They developed an omnidirectional robot which consists of nine rollers. The robot is operated using direct current motors and they are directly coupled to the chassis [2]. This paper proposed an improved design for a mecanum wheel for Omni-directional robots.

This design improved the efficiency of mobile robots by reducing frictional forces and thereby improving performance theoretically. Paper theorized that surface plays an important part in the creation of force vectors of individual wheels [3]. The paper shows results for four-wheeled Omni-drive transport systems and certain ranges for trajectories and starting conditions, a curved path can be traversed faster than a straight-line path [4]. This paper shows the results of an electrical design of a robot that uses mecanum wheels. It shows the different variations in its tests [5]. The paper was an overview of the design of Omni-directional mobile robot using mecanum wheel [6]. The main advantage of this type of wheel was represented by the omnidirectional property that it provided, allowing extreme maneuverability and mobility in congested environments [7]. In this paper, they introduced the new design of the Omni-directional mobile robot with mecanum wheel to overcome the weak points of their previous robots [8].

II. THE MECANUM WHEEL

Mecanum wheel was first developed by [1] in 1972. Such wheels can rotate around an active wheel's axis, (i.e. the base wheel) and the rollers' axis at a 45° angle. The mecanum wheel has 3 DOFs consisting of a steering drive, roller motion and vertical axis turning slip at the point of interaction. The rollers on the mecanum wheel are positioned at an angle other than 90 degrees (typically ± 45 degrees) as shown in Fig. 7. The roller's contact point with the surface is discontinued, resulting in vibrations in the base frame of the robot specifically on uneven surfaces.



Investigations on Magnetic Suspension System of Shock Absorber by Finite Element Method

Prof. S. V. Tawade¹, Mr. Rupesh D. Chorge²

Asst. Prof., Dept. of Mechanical Engineering, Navsahyadri Group of Institutes, Faculty of Engineering, Pune, India¹
Trainee Engineer BOSCH Limited, Pune, India²

Abstract: The suspension system of two wheelers is depending upon spring type, hydraulic or pneumatic type of suspension systems. This present work gives deals with the magnetic suspension system and the magnetic suspension system is turning out to be the new option to the conventional suspension systems. The aim of this work is to study and investigate the response of two-wheeler suspension system, when it is subjected to road surface irregularities. This research work presents design, construction and working of magnetic suspension system. This system uses magnets and spring as passive dampers, which are used to reduce displacement and acceleration of spring mass in order to improve ride comfort. This type of Suspension has no problem of leakage of oil like hydraulic shock absorber. FEA analysis is carried out over the suspension spring with different materials such as Chrome silicon, Carbon steel, NiCr, magnesium and Aluminium. With and without magnetic suspension is analysed for the stress and deformations. It is observed that the carbon steel has minimum deflection and the maximum stress induced in aluminium material.

Keywords: Magnetic, Suspension system, Spring, Spring Material, FEA

I. INTRODUCTION

In order to overcome the disadvantages of the conventional suspension system the magnetic suspension system can be used. The magnetic suspension system can be used in many applications of the suspension in automobile industries and in other industries too. The mechanical magnetic suspension system using permanent magnet also has some disadvantages of slow responsibility and difficult control. The present work is focused on developing the actively control mechanical magnetic suspension systems using a permanent magnet. Magnetic suspension system is mainly based on the property of magnets that like poles of magnets repel each other. This characteristic of magnets is used in suspension system. The suspension system also contains spring in between the two magnets to avoid direct contact of two magnets due to overloading. Such systems find large number of applications in automobile industry. In this modern world automobile sector has reached its peak. In two-wheeler suspensions systems the coil spring after utilizing for some time it becomes not only harder but also reduces cushioning effect. This limitation of the coil spring can be overcome by using magnetic suspension system. The cushioning effect provided by magnetic suspension will exist for long time. There is one magnet fixed at the top of the inner portion of the cylinder and the second magnet placed at bottom of the inner portion of cylinder that reciprocates up and down due to repulsion. The two magnets repel against each other to achieve the aspect of suspension. This system is having the tendency to eliminate the use of conventional suspension system due to its low cost and less maintenance capacity. The modern automobile has come a long way since the days when "just being self-propelled" was enough to satisfy the car owner. Improvement in suspension, increased strength & durability of components, and advances in tire design and construction has made large contributions to riding comfort and driving safety. Basically, suspension refers to the use of front and rear springs to suspend a vehicle's frame, body, engine, and power train above the wheels. These relatively heavy assemblies constitute what is known as sprung weight. Unsprung weight, on the other hand, includes wheels and tire, brake assemblies and other structural members not supported by the springs. The springs used in today's cars and trucks are engineered in a wide variety of types, shapes, sizes and capacities. Types include leaf springs, coil springs and torsion bars. The functions of suspension system are, preventing the vehicle body and frame from road shocks, giving stability of the vehicle, safeguards the passengers and goods from road shocks, gives the good road holding while driving, cornering and braking, gives cushioning effect, provides comfort, shock forces are reduced as much as possible, maintains the proper ride height of your car, maintain proper alignment of the wheels, serves as weight support for the vehicle, maintain tire contact with the road, controls the vehicle's travel direction, maintains a solid grip on the road while driving, cornering, or braking, maintains the correct steering geometry, torque and braking reflexes must be resisted, maintaining vehicle stability while traveling over uneven terrain or turning in order to reduce the tendency for rolling, pitching, or vertical movement, protects passengers from road shocks and give a comfortable ride, reduce the strains caused by road shocks on the motor vehicle's mechanism and offer a cushioning effect, protects the vehicle's structure from stress loading and vibration caused by road surface irregularities while maintaining its stability, achieve the necessary height for body structure, retain the right geometrical relationship between

Design and Manufacturing of Material Handling Robot Having XY Gantry Mechanism

Mr. Rakhangi Javat¹ and Prof. S. V. Tawade²

B.E Mechanical Engineering Student, Navsahyadri Group of Institutes, Faculty of Engineering, Pune¹

Assist. Prof. Department of Mechanical Engineering, Navsahyadri Group of Institutes, Faculty of Engineering, Pune²

Abstract: In powder coating industry there will be heavy and large number of components for the process. For powder coating process the components need to be taken to three stages. For taking this component to these stages it needs to be lifted. This lifting is time consuming and difficult. We need labors for this and thus it can create accident. Thus, for this purpose we are creating a mechanism that would save our time. For horizontal and vertical movement, we use lead screw. The feed is supplied to the lead screw with DC motor. And for holding the component we use grippers. Today because of developments in technology various industries use robots in material handling to avoid accidents in hazardous chemical industries and for increasing efficiency, accuracy, and safety of workers. So, in this work we are developing XY gantry mechanism for material handling in powder coating. The main aim of our work is to manufacture a robot for material handling purpose. For the material handling operation, the robot will be consisting of rack and pinion arrangement in X and Y directions. While working in X direction rack will be fixed and pinion will be moving and for Y direction rack will be moving and pinion will be stationary. For pick and place operation there will be a gripper. The pick and place operation and all motion will be guided by DC motor.

Keywords: Robot, Gripper, Gantry, Material Handling

I. INTRODUCTION

An easy way to comply with the conference in modern industries material handling plays an important role to increase the productivity and decrease the cost of product. The material handling can be defined as an integrated system involving such activities as moving, handling, storing, and controlling of materials by means of gravity, manual effort or power activated machinery. Efficient material handling is needed for timely delivery and reduced idle time of machines due to non-availability or accumulations of materials at workstations. Safe handling of materials is important in a plant as it reduces wastages, breakage, loss, and scraps. The last two decades have witnessed a significant advance in the field of robots application. Many more applications are expected to appear in space exploration, battle field and in various activities of daily life in the coming years. A robot is a mechanical device that performs automated tasks and movements, according to either pre-defined program or a set of general guidelines and direct human supervision. These tasks either replace or enhance human work. Robot is an integral part in automating the flexible manufacturing system that one greatly in demand these days. Robots are now more than a machine, as robots have become the solution of the future as cost labour wages and customer's demand. Even though the cost of acquiring robotic system is quite expensive but as today's rapid development and a very high demand in quality with standards human are no longer capable of such demands. Research and development of future robots is moving at a very rapid pace due to the constantly improving and upgrading of the quality standards of products.

II. LITERATURE SURVEY

The last two decades have witnessed a significant advanced in the field of robot applications. A robot is a mechanical device that performs automated tasks and movement according to their set of general guidelines and direct human supervision. The tasks either replace or enhance human work such as in manufacturing or manipulation of heavy and hazardous material handling [1]. In today's competitive global market, industries and manufacturing companies demand adjustable sizes, higher quality, flexibility, and shorter lead time types of products to be manufactured. Companies need to attain customer satisfaction and cost reduction in production operations [2]. A gantry mechanism



red'shine
PUBLICATION



HOME → EDITED BOOKS → MANAGEMENT OF
SHRIMP FARMING IN RATNAGIRI AND INDHURG
DISTRICTS



MANAGEMENT OF SHRIMP FARMING IN RATNAGIRI AND SINDHUDURG DISTRICTS

DR. SAGAR RAGHUNATH POWAR
DR. LAXMAN NARAYANRAO RENAPURE



Navsahyadri Group of Institutes

Faculty of Management - MBA

NAAC 'A' Grade Institute

Campus Address: Naigoan (Nasrapur), Pune-Satara Road, Pune - 412 213



Approved by AICTE, New Delhi | Recognized by Govt. of Maharashtra | Affiliated to SPPU (Pune University) and DTE



मौनी उत्सव



मौनी विद्यापीठ वर्धापन दिन सोहळा २०२४

ज्ञान ज्योत

9850212010



8:14

4G

redshine.co.in

ISBN
YES

DIP (Digital Identify for Peer-review)
YES

DOI (Digital Object Identifier)
YES

ISBN format
Print (Paperback or Hardback & eBook)

Book Format
Print, eBook, Google Play Format, Amazon
Kindle, REDSHINE eBook, ePub, PDF

Cover Design
Premium (full color)

Interior Design
Premium

Pages
Up-to 350 (after 2 INR/Page for each copy)
for B/W printing
Up-to 150 (after 3 INR/Page for each copy)
for color printing

Book Size
6×9, 8×11, 5×7, 8×10, A4, A5

Copy Editing
NO but Add-On available

Indexing





Navsahyadri Group of Institutes Faculty of Management - MBA



NAAC 'A' Grade Institute

Campus Address: Naigoan (Nasrapur), Pune-Satara Road, Pune - 412 213

Approved by AICTE, New Delhi | Recognized by Govt. of Maharashtra | Affiliated to SPPU (Pune University) and DTE





'RESEARCH JOURNEY' International E- Research Journal

Special Issue - 330(B): Multidisciplinary Issue

Impact Factor 6.625

Peer Reviewed Journal

E-ISSN :

2348-7143

October - 2023

	Essential Food Items in Metropolitan Cities Dr. Khyati Shah, Mr. Shadmaan A. Shaikh	
23	Role of Green Marketing in Consumers Satisfaction Dr. Arti C. Lokhande, Prof. Archana Badhan	140
24	Transformation and Changes in Commerce and Management Dr. Vaijayanti Ramavat	144
25	Future Of Industry 5.0 in Society: Human Centric Solutions, Opportunities and Challenges Dattu Lahane, Prof. S. D. Talekar	148
26	Women Empowerment V.M.Ghodake, Dr.Kailas Jadhav	155
27	Profitability Assessment of Shrimp Culture in India Dr. Sagar Powar , Mr. Laxman Renapure	160
28	Exploring Dynamics of India's G20 Presidency: Extensive Analysis Dr. Vishnu Yadav, Dr. Manisha Shinde	168
29	The Impact of 5G Technology on Iot and Commerce Dr.CA Bharat Patel, Dr. Balram Gowda	175
30	Production and Marketing Constraints of Vegetables in Ahmednagar District of Maharashtra P. K. Makhare, K.D. Jadhav	187
31	Impact of Service Sector on Indian Economy Dr.Savita Joshi	190
32	Digital Marketing Practices and its Impact on Smes: A Literature Review Dr.Ravindra Gawali, Mr. Tukaram Khemnar	193
33	A Study of Digital Marketing Technology and its Impact on Consumer Buying Behavior with Special Reference to Ahmednagar District. Prof. Ramesh Nagare Dr. S.L.Argade	206
34	To Study the Role of MEME For Employment Creation in India Mr.Vishal Zende, Dr.P.S.Ingole	210
35	Development of Startup Ecosystems in the State of Maharashtra Dr.V.B. Bairagi, Piyush Dixit	213
36	Role of Digitalization in Promoting Atma Nirbhar Bharat Dr. Harjeet Panjabi, Prof.Raju Tribhuvan	219
37	Role of Education in Women Empowerment Dr. Nilofar Shaikh	222
38	A Study of Growth of Digital Marketing in India Mrs. R.M.Kadam	229
39	Role Artificial Intelligence (Ai) in Social Media Marketing: An Overview Dr. Meeta Pathade, Ms. Roshni Vlecha	233
40	Revolutionary Impact of Chatgpt on Effective Business and Marketing Dr. Meena S. Doibale	237
41	National Higher Education Quality National Education Policy 2020 Dr.Adinath More	240
42	A Study on Innovative HRM Practices For Effective CRM in Cooperative Banking Sector Dr. Mahesh K. Bhiwandikar	246

Our Editors have reviewed papers with experts' committee, and they have checked the papers on their level best to stop furtive literature. Except it, the respective authors of the papers are responsible for originality of the papers and intensive thoughts in the papers. Nobody can republish these papers without pre-permission of the publisher. - Chief & Executive Editor



Navsahyadri Group of Institutes

Faculty of Management - MBA

NAAC 'A' Grade Institute

Campus Address: Naigoan (Nasrapur), Pune-Satara Road, Pune - 412 213



Approved by AICTE, New Delhi | Recognized by Govt. of Maharashtra | Affiliated to SPPU (Pune University) and DTE

