

Riyaz Rafique

B.E., M.Tech (Mechanical Engineering)

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RESEARCH INTEREST:

Development of Novel Mechanisms which are responsible for New Product Development, Mobile Robotic Platforms for different terrains and Reconfigurable mechanisms with single degree of freedom.

WORK EXPERIENCE:

- **Chief Researcher at Elementa Robotics Systems, Bhopal, India** from July 2014 to present.
- Worked as a **Lecturer in Department of Mechanical Engineering at Lovely Professional University, Phagwara, Punjab** from Aug 2008 to Dec 2010.
 - Mentor and Coordinator of students in their final and pre-final year projects.
 - Responsible for assisting students in various activities like technical paper presentation, technical model contest etc. during national level competitions and college technical festivals.
 - Courses taught: Machine Design, Theory of Machine, Workshop Technology, AutoCAD and Automobile Engineering.
 - Master Course Co-ordinator of CAD
 - Co-ordinator of “Entrepreneurship Development Committee”.
- Worked as a **Technical Consultant**, in a Start up “Inventor’s Column”, Bhopal for consultancy and development of **Engineering Projects** from Jan 2006 to August 2008.
- Worked as a **Lecturer in the Department of Mechanical Engineering at “Al-Falah School of Engineering & Technology”, Dhauj, Faridabad (N.C.R. Delhi)** From Sept 2005 to Jan 2006.
 - Mentor and Coordinator of students in their final and pre-final year projects.

PATENT APPLIED:

- Applied for **four patents** in India for novel mechanisms for mobile robots and turbine.
- Applied for **two International patents** through PCT Route for novel mechanisms for robotic platforms and turbine.

AWARDS / HONOURS:

- Awarded Financial and Legal assistance from “National Research Development Corporation”, a Government of India enterprise which is presently working under the “**Department of Scientific and Industrial Research (DSIR)**”, Ministry of

Science & Technology, Government of India, for filing patent for one of my invention.

- **Best paper Award** for paper titled “**ILM 1.0 – Innovative Leg Mechanism with Single Degree of Freedom for Legged Robot**”, presented at **National Conference on “Frontiers in Mechanical Engineering” (FIME-2013)**, held at Maulana Azad National Institute of Technology (MANIT), Bhopal, India from 29th to 31st Aug 2013.
- Invited by Professor Anil K. Gupta, KL Chair Professor of Entrepreneurship of “**Indian Institute of Management**”, Ahmedabad, India to share my invention / innovation at “**Fourth Workshop on Inventors of India**”, at “**Indian Institute of Management**”, Ahmedabad, during 28th – 30th November 2008.

PROJECTS / THESIS COMPLETED:

- Major Project on “Stair Climbing Robot”, submitted in Bachelor of Engineering.
- Minor Project–II on “Pick and Place Robot”, submitted in Bachelor of Engineering.
- Minor Project–I on “Four Legged Walking Robot”, submitted in Bachelor of Engineering.

CONFERENCES ATTENDED AND PAPER PRESENTED:

- Riyaz Rafique and Mohammad Younus, “**SDOFLM 1.0 – Single Degree of Freedom Leg Mechanism for Walking Machines**”, Proc. of **National Conference on “Innovation in Mechanical Engineering” (NCIME-2013)**, Bhopal, India, August, 2013.
- Riyaz Rafique, Mohammad Younus, “**ILM 1.0 – Innovative Leg Mechanism with Single Degree of Freedom for Legged Robot**”, for **National Conference on “Frontiers in Mechanical Engineering” (FIME-2013)**, held at Maulana Azad National Institute of Technology (MANIT), Bhopal, India on 29th to 31st Aug 2013.
- Riyaz Rafique and Mohammad Younus, “**OSM 1.0 - Obstacle Surmounting Mechanism for Mobile Robotic Platform**” Special Issue: Proceeding of **2nd International Conference on Emerging Trends in Engineering and Management, Rohtak** in “*International Journal of Advances in Engineering Sciences*”, Vol.3, No.3, July 2013, pp. 160-164.
- Riyaz Rafique, Mohammad Younus, “**ISMWMP 1.0 - Design and Development of Innovative Steering Mechanism For Wheeled Mobile Robotic Platform**”, for **International Conference on “Development in Robotics, Applied Mechatronics, Manufacturing & Automation – 2013 ” (DRAMA-2013)**, held at National Institute of Technical Teacher's Training & Research (NITTTR), Bhopal, India on 16th to 17th Sep 2013.

SKILLS RELATED WITH PATENT AND ITS DRAFTING:

- Hands-on experience with the technical process, regulation and execution of drafting and filing of Patent applications for National as well as International Patent application process through PCT Route.
- Familiar with the Funding Agencies working under the “**Department of Scientific and Industrial Research (DSIR)**”, **Ministry of Science & Technology, Government of India**, for filing patent.

MEMBERSHIPS & ASSOCIATIONS OF INTERNATIONAL BODIES:

- Life member of “Association for Machines and Mechanisms (AMM)”, India which is the Indian national affiliate of the International Federation for the Promotion of Mechanism and Machine Science, IFToMM.
- Member of “International Association of Engineers (IAENG)”, Hong Kong.
- Member of “The IAENG Society of Mechanical Engineering”, Hong Kong.
- Associate Member of “Universal Association of Mechanical and Aeronautical Engineers (UAMAE)”.
- Member of “International Association of Online Engineering (IAOE)”, Vienna, Austria.
- Member of “International Association of Engineers and Scientists (IAEST)”.

MEMBER OF EDITORIAL BOARD / REVIEWER OF JOURNALS:

- Member of Editorial Board of “International Journal of Innovative Research in Electronics and Communications”.
- Reviewer of “International Journal of Scientific Engineering and Technology”.
- Reviewer of “International Journal of Engineering & Technical Research”.
- Reviewer of “International Journal of Engineering Research and Technology”.
- Member of Researchers Promotion Group of “International Journals of Engineering & Sciences (IJENS)”.
- Member of “The i-Xplore International Research Journal Consortium (IIRJC)”.

PARTICIPATION IN NATIONAL / INTERNATIONAL COMPETITIONS:

- Participated in “**Techfest 2005**”, held at **Indian Institute of Technology, Bombay** in the event “**Rescue**” Robotics Competition.
- Participated in “**Shaastra 2004**”, held at **Indian Institute of Technology, Madras** in the event “**Robo Grandprix**”, Robotics Competition.
- Participated in Mega State Level Event “**NOVIZIO – 2004**”, held at “N.R.I. Institute of Science & Technology”, Bhopal in the event “**Working Models**” Competition.
- Participated in “**Techfest 2004**” held at **Indian Institute of Technology, Delhi** in the “**Robomania**” Robotics Competition.

PARTICIPATION IN NATIONAL / INTERNATIONAL WORKSHOPS:

- Participated in “**International Workshop on Computer Aided Engineering and Robust Design**” (IWCAERD - 2013), held at SKP Engineering College, Tiruvannamalai, Tamilnadu, India on 23rd to 24th Aug 2013.
- Participated in the "**Astronomy Workshop**", held during technical festival event in "Shaastra 2004" at Indian Institute of Technology, Madras.

PROJECTS COMPLETED / DEVELOPED WORKING PROTOTYPE:

- **Four Legged Walking Robot**
Successfully completed design and development of Four Legged Walking Robot. It is based on “Quick Return Motion Mechanism”. It eliminates the problems faced while synchronization of legs, as whole mechanism is based on single degree of freedom for powering legs. Working prototype has been successfully developed.
- **Hybrid Exploration Rover**
Successfully completed design and development of Hybrid Exploration Rover. It is developed for the smart mobility system having wheels as well as legs, to handle normal surfaces with the wheels and uneven surfaces or hurdles with the legs. Working prototype has been successfully developed.
- **Innovative Steering Mechanism for A.G.V. and W.M.R.**
Successfully completed design and development of Innovative Steering Mechanism for A.G.V. and W.M.R. Many factors were taken into account when designing this system. The foremost criteria of the design was that the vehicle must be much capable to move in Straight motion (Say X-axis) and then suddenly in Left or Right (Say Y-axis or Say 90 degree with respect to X-axis). Moreover, the Vehicle will be much capable to spin with respect to it's own centre. Working prototype has been successfully developed.
- **Wheeled Mobile Rover with modified wheels**
Successfully completed design and development of Wheeled Mobile Rover with modified wheels. Many factors were taken into account when designing this system. The foremost criterion of the design was that the vehicle must be much capable to move in Straight motion (Say X-axis) and then suddenly in left or right (Say Y-axis or say 90 degree with respect to X-axis). **Also, it can move diagonally (or any angular position) in any direction without rotating the platform.** Working prototype has been successfully developed.
- **Pick and place Robot**
Successfully completed design and development of pick and place robot. It is developed for picking small objects from one place and then placing it to another place. Working prototype has been successfully developed.
- **Stair Climbing Robot**
Successfully completed design and development of stair climbing robot.

It is designed to solve the problems faced for maneuvering while ascending or descending the stairs.

COMPUTER PROFICIENCY:

- AutoCAD
- Familiar with Solid Works
- Familiar with Artas SAM 6.0
- Microsoft Office (MS Word, Excel, PowerPoint)

ONLINE CERTIFICATE COURSES:

- Received “Statement of Accomplishment”, “**With Distinction**”, on successfully completing Online Certificate course on “**Developing Innovative Ideas for New Companies**”, from 28th Jan 2013 to 18th March 2013, offered from “Maryland Technology Enterprise Institute (Mtech)”, of “**University of Maryland**”, USA. The course instructor was Dr. James V. Green who is Director of “Entrepreneurship Education”, at “Maryland Technology Enterprise Institute (Mtech)”, of “**University of Maryland**”, USA.

In this course subsequent weekly assignments were evaluated and then only students with a total grade of over 70% receive an online “Statement of Accomplishment”, whereas students with a grade of at least 90% receive the added designation "with Distinction".

PERSONAL INFORMATION:

Father's Name : Mr. Hifzur Rahman
Sex : Male
Marital Status : Married
Nationality : Indian
Language known : English, Hindi & Urdu.
Hobbies : Brainstorming, Designing and Prototyping Novel
Mechanisms responsible for New Product Development.
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Distt.- Sonebhadra, Uttar Pradesh, PIN- 231222, India

References will be furnished when required.