EXPERIENCE OF ATTENDING IMSD 2014 & ACMD 2014

The 3rd Joint International Conference on Multibody System Dynamics (IMSD)

And

The 7th Asian Conference on Multibody Dynamics (ACMD)

June 30 - July 3, 2014, BEXCO, Busan, Korea

BY

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Co-authors

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5th August, 2014

Department of Mechanical Engineering

IIT Delhi, New Delhi

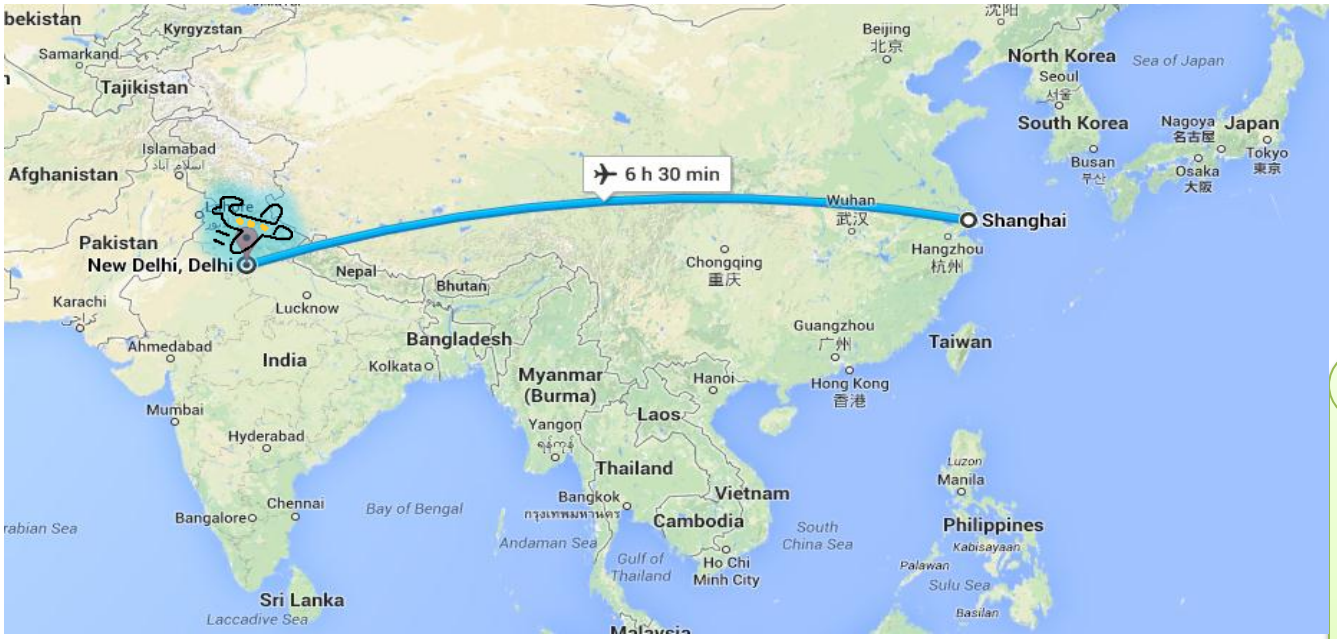
Contents of Presentation

- Introduction
- Experiences
- Our Paper
- Photo Album

TRAVELER INFORMATION

MR. HAYAT ABDULLAH AAMIR
Delhi - Shanghai - Busan - Shanghai - Delhi

E-Ticket number	781-5224673853
Issuing Airline:	MU
Ticket status: E-Ticket processed 19MAY14	



Delhi-Busan
Flight: Eastern China
Booked Via: GD Goenka, IIT Delhi

Busan, South Korea is *3:30 hours ahead* of New Delhi, India

About IMSD and ACMD

IMSD: International Conference on Multibody System Dynamics

- Series has been started in 2010 was held in Finland .
- Opportunity for international multibody community to meet and exchange advanced topical information on the theories and the applications .
- IMSD-2016 will be held in Canada.
- IMSD-2020 is proposed to Prof. Saha for organizing it in INDIA.

ACMD: Asian Conference on Multibody Dynamics)

- Hosted by Asian countries.
- Series has been started in 2002 was held in Japan.
- To enhance cooperation and academic exchange among engineers in Asia and over the world in the fields of multi-body dynamics.

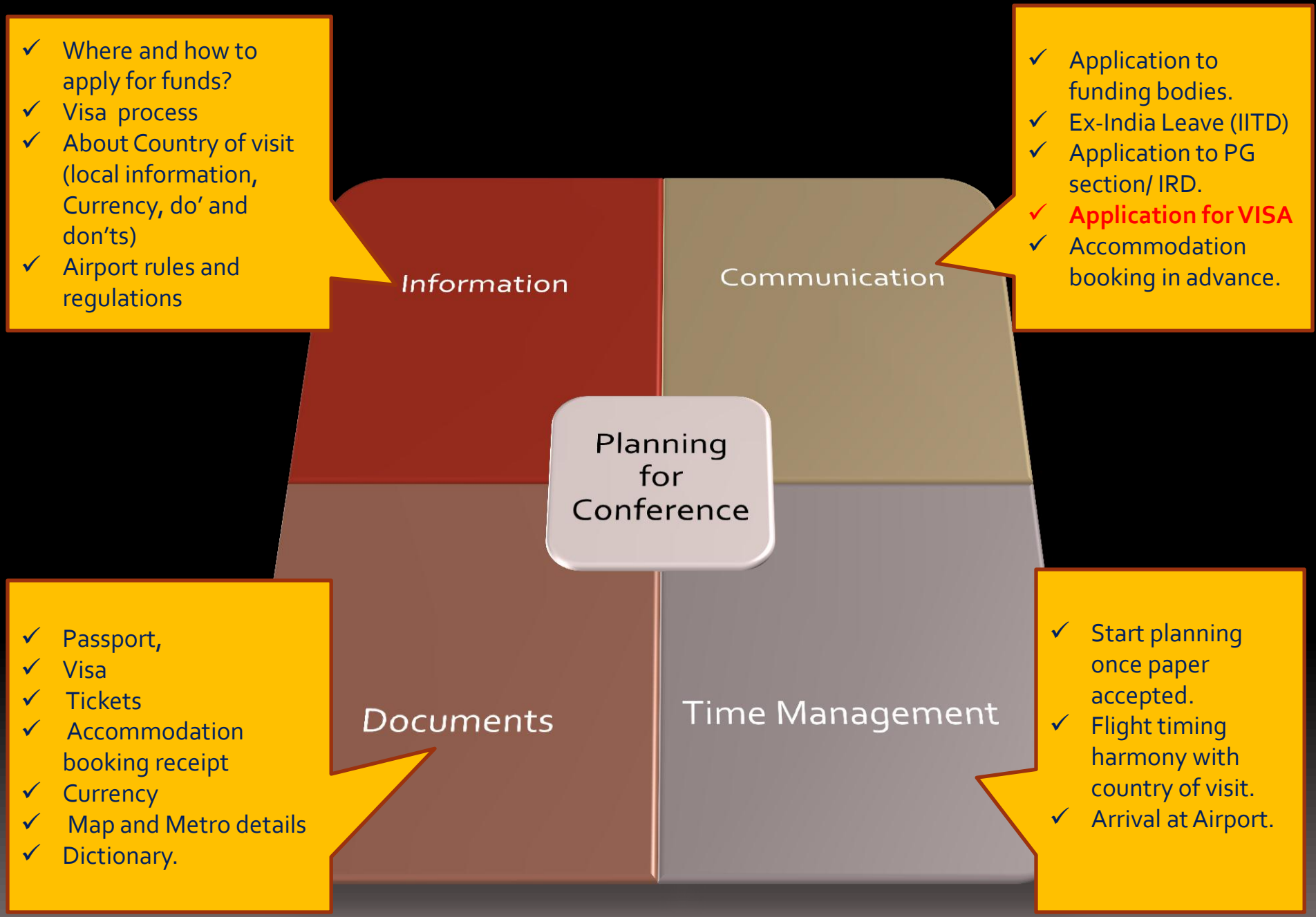
Conference Sessions

- Algorithms, Integration Codes, and Software
- Biomechanics
- Contact and Impact Problems
- Control and Mechatronics
- Dynamics of All Vehicles
- Dynamics of Machines and Rotating Structures
- Efficient Methods and Real-Time Applications
- Flexible Multibody Systems
- Multidisciplinary Approaches
- Modeling, Formalisms, and DAE Solution Method
- Optimization, Sensitivity Analysis and Parameter Identification
- Robotic Systems
- Theoretical and Computational Methods
- High Performance Computing
- Multibody Applications, Experiments and Other Topics
- Benchmark Problems in Multibody System Dynamics

- ✓ 300+ Participants
- ✓ 222 Papers Presentation
- ✓ 70 Sessions

Indian Presence @ Conference

- Mr. Parmanand
- Mr. Zubair
- Mr. Anil Mr. Sachin
- Mr. Bhivraj
- Mr. Jatheendranath
- Myself
- Prof. Saha

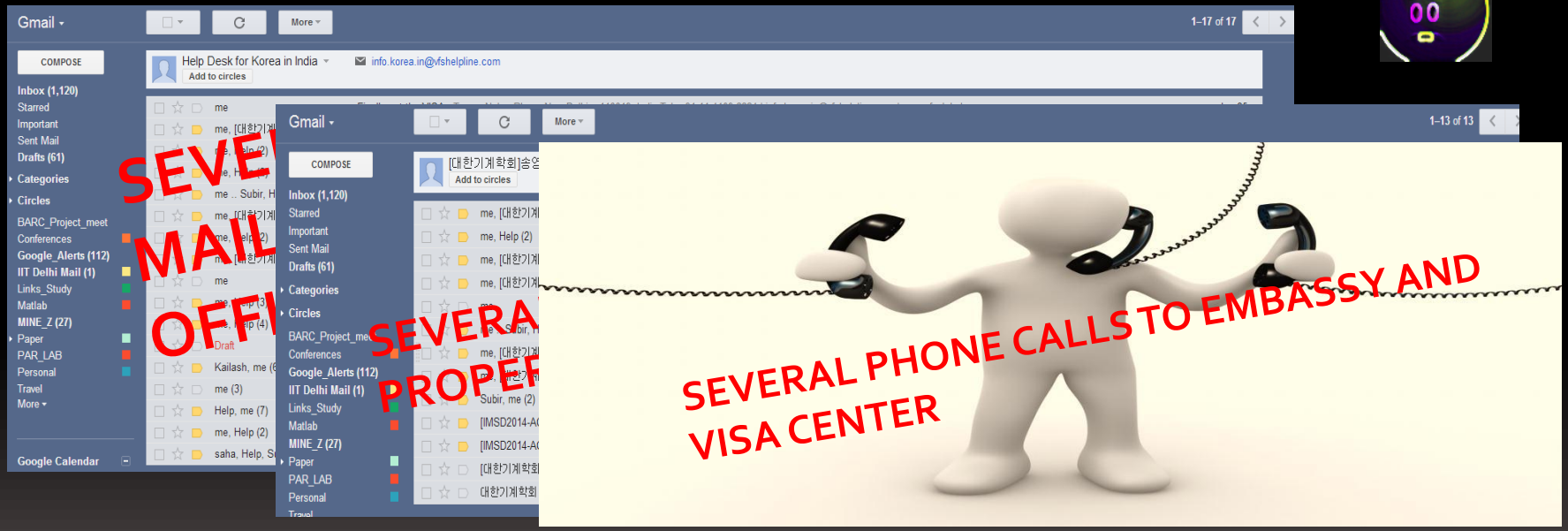

Where and how to apply for funds?
Visa process
About Country of visit (local information, Currency, do' and don'ts)
Airport rules and regulations
Information
Application to funding bodies.
Ex-India Leave (IITD)
Application to PG section/ IRD.
Application for VISA
Accommodation booking in advance.
Communication
Planning for Conference
Passport,
Visa
Tickets
Accommodation booking receipt
Currency
Map and Metro details
Dictionary.
Documents
Start planning once paper accepted.
Flight timing harmony with country of visit.
Arrival at Airport.
Time Management

Experience of Applying for VISA

South Korean Visa Center: VFS global at Nehru place, New Delhi

Usual Processing time: 5 days mentioned on embassie site.

Applied for visa: **29th of May 2014.**



Finally after effort of several hours and cooperation of Prof Saha:

Got Visa on: One day before the flight ticket on 29th of June 2014.

Suggestions

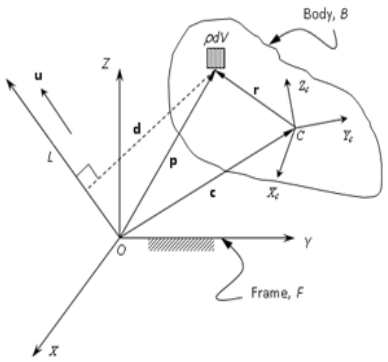
- ✓ Apply for VISA once you got the confirmation regarding acceptance of paper.
- ✓ Before visiting the VISA center, call them regarding the documents required by them. (Generally documents required are:

From Organizers	From Institute	From Your Side
Letter of Invitation	**Bona fide Certificate** mentioning date of joining and present status	Valid PASSPORT
Business Registration certificate of the conference		Bank Statement of past six month
		Valid **PHOTOGRAPH**

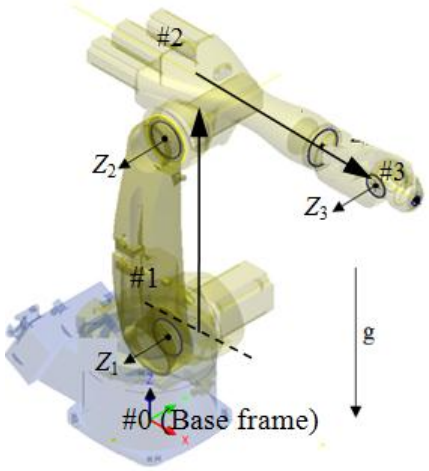
- ✓ Start communicating to embassy and Visa center if it is getting delayed by mentioned time.

Our Paper

Identification of Dynamic Parameters of an Industrial Manipulator

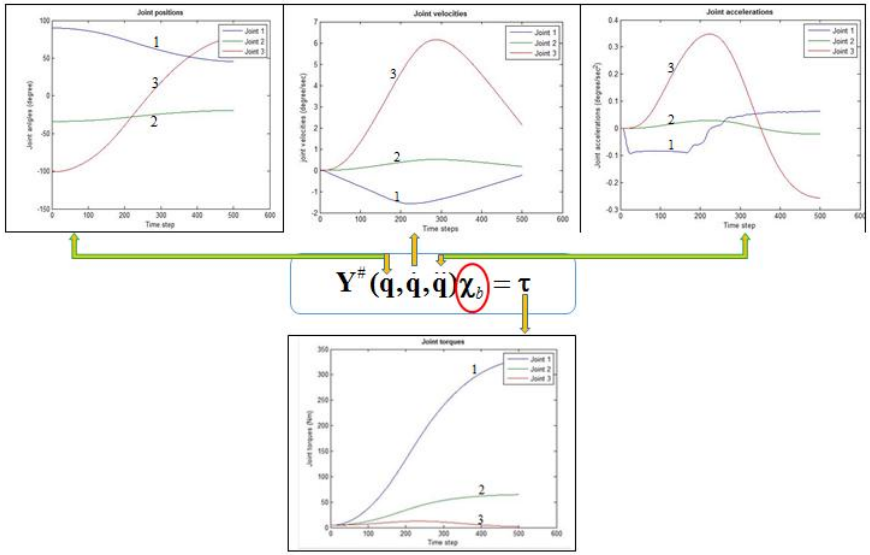


	Expression	Number of parameters
Mass	$m \equiv \int_V \rho \, dV$	1
Center of mass	$\mathbf{c} \equiv \frac{1}{m} \int_V \mathbf{p} \rho \, dV$	3
Moment of Inertia symmetric and positive definite	$\mathbf{I} \equiv \begin{bmatrix} I_{xx} & I_{xy} & I_{xz} \\ I_{yx} & I_{yy} & I_{yz} \\ I_{zx} & I_{zy} & I_{zz} \end{bmatrix}$	6



$$\mathbf{I}(\mathbf{q})\ddot{\mathbf{q}} + \mathbf{h}(\mathbf{q}, \dot{\mathbf{q}}) + \boldsymbol{\gamma}(\mathbf{q}) = \boldsymbol{\tau}$$

$$\mathbf{Y}(\mathbf{q}, \dot{\mathbf{q}}, \ddot{\mathbf{q}})\boldsymbol{\chi} = \boldsymbol{\tau}$$



Our Paper

Identification of Dynamic Parameters of an Industrial Manipulator

RESULTS AND VALIDATION

S.No.	Base Parameters	Identified Values	Unit
1	$I_{zz,o1} - 0.36m_1 - 0.36m_2 - 0.36m_3$	-178.2944	Kg-m^2
2	$0.6m_1 + 0.6m_2 + 0.6m_3 + m_1 d_{x1}$	38.3942	Kg-m
3	$m_1 d_{y1}$	0.0064	Kg-m
4	$I_{zz,o2} - 0.39879m_2 - 0.39879m_3$	3.9082	Kg-m^2
5	$0.6315m_2 + 0.6315m_3 + m_2 d_{x2}$	10.6798	Kg-m
6	$m_2 d_{y2}$	7.2487	Kg-m
7	$I_{zz,o3}$	14.9955	Kg-m^2
8	$m_3 d_{x3}$	1.1736	Kg-m
9	$m_3 d_{y3}$	-0.4988	Kg-m

Dynamic Parameters	Identified values through Inverse Dynamic Least Squares method	Identified values through Gravity Compensation method
$0.6m_1 + 0.6m_2 + 0.6m_3 + m_1 d_{x1}$	38.3942	38.297
$m_1 d_{y1}$	0.0064	0
$0.6315m_2 + 0.6315m_3 + m_2 d_{x2}$	10.6798	8.612
$m_2 d_{y2}$	7.2487	9.058
$m_3 d_{x3}$	1.1736	1.169
$m_3 d_{y3}$	-0.4988	-0.499

Conclusions

Lots of new experiences were gained.

Got chance to meet renowned people and interacted with them.

Feedback on the work.

Useful to attend such Conferences.

PHOTOS

Please visit: https://www.youtube.com/watch?v=f6dXtKjCxdA

THANKYOU