

## FORMAT - 2

### Pro-forma for Report for utilization of FIST support

1. Name of College: **Postgraduate Department of Computer Science, University of Kashmir**

2. Address for communication:

**Prof. Arif Wani,**  
**Head of Postgraduate Department of Computer Science,**  
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3. Date and ref. No. of DST Sanction letter: **NO SR/FST/ETI-368/2014(C) Dated: 05-01-2016**

4. Details of the Grants

<b>Budget Heads</b>	<b>Amount Sanctioned with Date</b>	<b>Amount Received with Date</b>
<b>a. Equipment</b>	<b>Rs. 45,00,000 07-01-2016</b>	<b>Rs. 45,00,000 2016</b>
<b>b. Infrastructure</b>		
<b>c. Networking</b>		
<b>d. Maintenance</b>	<b>Rs. 1,00,000 07-01-2016</b>	<b>Rs. 1,00,000 2016</b>
<b>e. Total</b>	<b>Rs. 46,00,000 07-01-2016</b>	<b>Rs. 46,00,000 2016</b>

5. Equipment ordered/purchased/installed:

<b>Name (with Model &amp; Make)</b>	<b>Order Date</b>	<b>Installation date</b>	<b>Cost in INR</b>
One Master Node Supermicro Model (1028R-WTNR) Two Computing Nodes Supermicro Model (SYS-5018GR-T) Four Workstations Supermicro Model (SYS-5038A-I) GB Ethernet Switch Software and Installation Server Rack	<b>July 2016</b>	<b>January 2017</b>	<b>Rs 25,53,075</b>
Matlab (25 licenses) Simulink (25 licenses) Statistics and Machine Learning Toolbox (25 licenses) Optimization Toolbox (25 licenses) Global Optimization Toolbox (25 licenses) Image Processing Toolbox (25 licenses) Data Base Toolbox (25 licenses) Parallel Computing Toolbox (25 licenses) Computer Vision System Toolbox (25 licenses) Neural Network Toolbox (25 licenses)	<b>June 2017</b>	<b>June 2017</b>	<b>Rs, 19,15,793</b>

6. Details of Infrastructure developed:

Server with one Master Node and two Computing Nodes and 4 workstations  
MATLAB Software with 25 Licenses

7. Details of Networking:

KU Gateway has a high-speed dedicated, unshared bandwidth of :  
1 Gbps under NKN through NIC  
40 Mbps from Reliance /Airtel  
512 Kbps from STPI

8. Utilization of the facilities created under FIST support:

a. For teaching: MATLAB Programming  
Image Processing  
Machine Learning  
Artificial Intelligence

b. For Research

Research Group		Research Area	Service Accessed
Faculty	Research Student		
Prof. Arif Wani's Group	Asif Khan	Finger Print Recognition Using Deep Learning	MATLAB HPC Server, Workstation
	Farooq Bhat	Face Recognition Using Deep Learning	MATLAB HPC Server, Workstation
	Saduf Afzal	Classification Using Deep Learning	MATLAB HPC Server, Workstation
	Heena Farooq	Genome Analysis	MATLAB HPC Server,
	Tahir Mujtab	Solar Panel Detection from satellite images using Deep Learning	MATLAB, Python HPC Server, Workstation
	Sajad Kawoosa	Object detection using Deep Learning	MATLAB, Python HPC Server, Workstation
	Munzir Ahangar	Text Classification using Deep Learning	MATLAN, Python HPC Server, Workstation
	Farah Fayaz	Microarray Data Classification	MATLAB HPC Server, Workstation
Dr. Manzoor A. Chachoo's Group		Machine Learning, NLP, Deep Neural Networks	MATLAB HPC Server, Workstation
Dr. Sajid Yousuf Bhat		Image Processing	MATLAB HPC Server

9. Details of full length research publications (in peer-reviewed journals) during the period under report

M. Arif and Saduf Afzal, "Optimization of Deep Network Models through Fine Tuning", International Journal of Intelligent Computing and Cybernetics", Pages 1-24, Accepted for publication, 2018.

M. Arif Wani and Saduf Afzal, "Gain Parameter and Dropout Based Fine Tuning of Deep Networks", International Journal of Advanced Intelligent Paradims, Pages 1-19, Accepted for publication, 2018.

M. Arif Wani and Heena Farooq, "One-Against-All and One-Against-One Multiclass Support Vector Machine Algorithms for Wind Speed Prediction", International Journal of Renewable Energy Research, Pages 1-8, Accepted for publication, 2018.

Farooq Ahmad Bhat, M Arif Wani, "Elastic bunch graph matching based face recognition under varying lighting, pose, and expression conditions", International Journal of Artificial Intelligence (IJ-AI) 3 (4), pp. 177-182, 2018.

Saduf Afzal, M. Arif Wani, "Training and Model Structure of Deep Architectures", Artificial Intelligent Systems and Machine Learning 10 (2), pp. 38-46, 2018.

Muzafar R Bhat, M. Arif Wani, "Mixture Weighted Latent Dirichlet allocation, an Optimized and Generalized Probabilistic Model for Large Corpus of Data", Artificial Intelligent Systems and Machine Learning 10 (1), pp. 8-17, 2018.

M. Arif Wani and Romana Riyaz, "A novel point density based validity index for clustering gene expression datasets", International Journal of Data Mining and Bioinformatics, 17(1), pp. 66-84., 2017.

Saduz Afzal, M. Arif Wani, "Algorithms for Optimized Training of Artificial Neural Networks", International Journal of Innovative and Emerging Research in Engineering, 4(8), pp 24-33, 2017.

Asif I Khan, M Arif Wani, "Latent Fingerprints Classification Using Transfer Learning", Artificial Intelligent Systems and Machine Learning 9 (9), pp. 188-193, 2017.

Farooq A Bhat, M Arif Wani, "Dropout Technique Based Convolutional Neural Networks Model for Face Recognition", Artificial Intelligent Systems and Machine Learning 9 (9), pp. 202-209, 2017.

Romana Riyaz, I Rashid, M Arif Wani, "A New Cluster Validity Index Using Novel Point-based Compactness Measure", International Journal of Applied Research on Information Technology and Computing, 8(3), pp. 231-246, 2017

M. Arif Wani, Romana Riyaz, "A new cluster validity index using maximum cluster spread based compactness measure", International Journal of Intelligent Computing and Cybernetics 9 (2), pp. 179-204, 2016.

Mohsin Altaf Wani, Dr Manzoor Ahmad, "GPU Based Non-Serial Polyadic Dynamic Programming Template", Recent trends in parallel computing, vol4, no:3., Pages 29-39, 2017.

Fazili, Shifaa Basharat, and Manzoor Ahmad. "LD-SMO Algorithm for Determining Trust in Skewed Social Media Data." Artificial Intelligent Systems and Machine Learning 10.2: pages 30-37, 2018.

Abid Hussain Wani, Rana Hashmy, "An unsupervised common sense based learning framework for emotion detection and classification in textual social data" Journal of Artificial Intelligence Research & Advances, Volume 4, Issue 3: Page: 49 -59, December 2017

Waseem Jeelani Bakshi, Rana Hashmy, Majid Zaman, Muheet Ahmed Butt, "Logical Perspective for Data Integration from Heterogeneous Repositories", International Journal of Innovations and Advancements in Computer Science (IJACS), pp 413-416, Vol. 6, Issue 12, December 2017

Mudasir Mohd., Rana Hashmy, "Opinions mining of Twitter events using spatial-temporal features", accepted for publication in the "Journal of Artificial Intelligence Research & Advances", To be published in Vol. 5 Issue 2, 2018.

Waseem Jeelani Bakshi, Rana Hashmy, Majid Zaman, Muheet Ahmed Butt, "Logical ETL Framework for Heterogeneous Data Sources", International Journal of Innovations and Advancements in Computer Science (IJACS), pp 10-1, Vol. 7, Issue 1, January 2018.

Waseem Jeelani Bakshi, Rana Hashmy, Majid Zaman, Muheet Ahmed Butt, "Logical Data Integration Model for the Integration of Data Repositories", International Journal of Database Theory and Application (IJDTA), pp. 21-28, Vol. 11, No. 1, March 2018.

10. Sponsored research projects in operation during the period under report (please provide name/s of PI/Co-PIs, title of the project, funding agency and total quantum of external support)

MRP Project:

PI: Prof. M. Arif Wani

Title: Novel Machine Learning Algorithms for Cancer Classification Using Microarray Data

Funding: UGC

Total Support: 11.5 Lacs

11. Utilization of Equipment from outside the College  
N. A.

12. SELF-ASSESSMENT OF THE IMPACT OF FIST SUPPORT: Please specify if any of the following activity emerged/ improved as a consequence of the FIST support:

- a. New class-room experiments at B.Sc./ M.Sc. or other levels

Image Processing, Machine Learning, Artificial Intelligence Laboratory classes for M. Tech. and MCA students  
MATLAB programming for departmental and non-departmental students

- b. Success of students at national level tests (various PG/Ph.D. entrance tests and tests for JRF etc)

N. A.

- c. Any new research project that emerged on the basis of the FIST support

No

- d. Did the newly created facility lead to betterment of quality of research publications

Yes. The newly created server helped researchers (faculty and students) to get results in shorter periods of time.

- e. Any training program/ workshop organized by the department during the period of report, specially those involving the newly created facility)

Imparted MATLAB programming training to non-departmental students under General Elective subjects.

13. Is any problem faced in utilization of the grant/facilities?

No

14. A report highlighting the research activities of the College during the period under review may also be provided.

The new server and software have helped the department to perform research in Image Processing, Artificial Intelligence, and Machine Learning areas immensely. Handling of large volumes of image data without this new facility would have created many hurdles.

This infrastructure has been used to perform laboratory classes in image processing, artificial intelligence and machine learning subjects. This facility was also used for teaching MATLAB programming to M. Tech and MCA students of the department and to non-departmental students as well.