

FORMAT
For
PROJECT COMPLETION REPORT FOR
RPS PROGRAMMES

(Please include sufficient details in sections 8-10 so as to facilitate proper evaluation of your project.)

File No. : 8023/BOR/RID/RPS-41/2008-09 **Date:**
(as mentioned in sanction letter)

Date of Sanction : January 6, 2009

Subject Area : Biomedical Instrumentation

1. Principal Investigator (Name & address) : Professor Manabendra Bhuyan.
Department of ECE, Tezpur University,
Napaam, Sonitpur, Assam – 784 028
2. Project Title : Detection of Nerve Injury Recovery by Intelligent
Processing of Nerve Conduction Velocity
(NCV) and Electromyogram(RMG) Signals
3. Total Cost of the Project : 11.20 Lakh
4. Date of Commencement of the Project : January 6, 2009
5. Duration of the Project : 2 years (Requested for extension)
6. Date of Completion : 31-03-2013
7. Objectives of the Project : Design of a hardware based NCV peak
and latency detection method using FPGA
8. Salient Research Achievements :
 - 8.1 New Findings/Achievements/IPR Potential
: Design of a hardware based NCV peak and latency detection method using
FPGA has been developed. The design will lead to a portable type of Neuropathy
detection technique which will be very helpful for point of care diagnosis(POCD) of
Neuropathy or nerve injury in accident. Although the basic design is proposed, further
research will have to be carried out to bring it to a level for prototype development for
field trials.
 - 8.2 Product/Process Developed : Portable field type NCV peak and latency
detector

8.3 Patent(s) Applied for/Taken, if any : Not yet

8.4 B. Tech. Project / M. Tech Thesis / :

i) **B Tech project:**

- a) "*Detection of Peak and Latency of NCV signals by FPGA*"- Mr Deepak Nath & Mr Varun Kumar,2012
- b) "*Detection of Neuropathy by FPGA*"- Miss Sanjana Dey & Mr Sushant,2013 (Ongoing)

M Tech project:

- a) *FPGA based Peak-Detection of Signals*- Ms Jyotsna Kakoty,2010
- b) *Detection and Classification of Neuropathy by using ANN*- Mr Anil Hazarika,2011
- c) *FPGA based Peak-Detection of NCV Signals* –Miss Jumpi Dutta,2011
- d) *Detection of Neuropathy by using Rough Set Theory*- Miss Emon Bora,2012

Ph.D. (On going): "*Nerve injury and Neuropathy Detection by ANN,Fuzzy and RST*"- Dr Mausumi Barthakur, MBBS, MD

Consultancy : NIL

9. Conclusions Summarizing the Achievements Indicating the Scope for Future Work:


The project has initiated and opened scope for point of care diagnosis of Nerve injury or neuropathy eliminating complicated clinical tests in hospitals. If developed fully, the device can be used as a portable device for such tests on site. This will be a great help to the poor village people of remote locations visiting specialized hospitals for the tests. Moreover the device will be useful in defense for use in testing nerve injury in battle field and accidents.

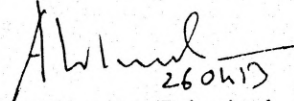
10. List of Publications Arising from the Project (please give Author (s),

Title, Journal and Year) :

- i) Deepak Nath, Varun Kumar and M Bhuyan, *On-line Detection of Nerve Conduction Velocity (NCV) using FPGA* , 1st International Conference on Recent Trends in Engineering Technology (ICRTET), 24th March, 2013, Bangalore, India
- ii) Deepak Nath, Varun Kumar and M Bhuyan, *FPGA based Peak and Latency Detection of Nerve Conduction Velocity (NCV) Signals* (Submitted to Sensors and Transducer Journal ,ISSN 1726-5479)
- iii) Mausumi Barthakur, Anil Hazarika and Manabendra Bhuyan, A Novel Technique of Neuropathy Detection and, Classification by using Artificial Neural Network (ANN), Second International Conference on Advances in Signal Processing and Communication – SPC, organized by ACEEE. SPC-2013, June 21-22, 2013, Lucknow, INDIA (Accepted)

Dated:


Principal Investigator


Registrar/Director/Principal
(Signature & Seal)

Registrar
Tezpur University



FORMAT
for
UTILIZATION CERTIFICATE
Financial Year: 2012-13

Sanction Letter No. 8023/BOR/RID/RPS-41/2008-09 Date: January 6, 2009

Project: Detection of nerve injury recovery by Intelligent Processing of Nerve Conduction Velocity(NCV) and Electromyogram (EMG) Signals

Investigator: Prof. Manabendra Bhuyan

Fund Sanctioned: Non Recurring: Rs.10,00,000.00
Recurring : Rs.1,20,000.00

A. NON-RECURRING

Sl. No.	Name of the Equipment Procured	Amount Sanctioned	Amount Utilised (Itemwise)	Unspent Balance
1.	Medicaid Neuro-perfect EMG 2000	Rs.10,00,000.00	Rs.9,99,999.00	Rs.00,001.00
2.	Digital Multimeter			
3.	IR non-contact thermometer Hand Held type)			
4.	IR non-contact thermometer (USB based data logging type			
5.	Xilinx software with accessories			
6.	Air Conditioner			
7.	Laptop			
8.	Printer			
9.	Air Conditioner			

B. Recurring (Consumables, TA, Books and Stationary Manpower etc.)

Sl No	Items	Cost
1	Travel & Miscellaneous item during 2009 – 10	9,769.00
2	Travel & Miscellaneous item during 2010 – 11	8,905.00
3	Travel & Miscellaneous item during 2011 – 12	39,775.00
4	Travel & Miscellaneous item during 2012 – 13	35,000.00
5	Travel	26,551.00

Total Rs.1,20,000.00

Certified that the grant has been utilized for the purpose for which it was sanctioned in accordance with the "Terms and Conditions" attached to the grant. If, as a result of check or audit objection some irregularity is noticed at a later stage, action will be taken to refund, adjust or regularize the amount objected to.

OSD (Finance)

Heeper University
(Signature & Seal)

Dated:

Registrar

Registrar
Heeper University

(Signature & Seal)

Name and Address of the
University/ Institution

