



No. LSRB/01/15001/LSRB-383/LS&BD/2021

Date: 08.09.2021

To,

Director,
Anna University,
Chennai – 600025

Sub: Grants-in-Aid for research project entitled "Productization and clinical evaluation of Bio-potential signal analysis system for mobility assistance" (LSRB-383) under LSRB.

Approval of the competent authority DG (TM) is hereby conveyed for a grant of at a total cost of **Rs. 51,85,388/- (Rupees Fifty One Lakhs Eighty Five Thousands Three hundred and Eighty Eight only)** to the Director, Anna University, Chennai for pursuing the research on the subject entitled project.

2. Project No. LSRB-383/LS&BD/2021

PI : Dr.M.Sasikala,
Professor and Director,
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Anna University, Chennai – 600025
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Email: sasikala@annauniv.edu

Co-PI -I: Dr.S.Poonguzhali
Associate Professor
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Email : poongs@annauniv.edu

Co-PI –II : Dr.S.Karunakaran, MS (Orthopedics)
Director,
Global Spine Institute
Global Hospital and Health City
No.439, Cheran Nagar, Perumbakkam, Chennai – 600 100.
Email : drkarunasspine@gmail.com

Co-PI -III: Dr. Sugan.M, MPT Neurology
Director,
Today's Physiotherapy and Rehabilitation
Today's Physiotherapy and Rehabilitation
No.4/180,Ottiyambakkam main road, Sithalapakkam -126,
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Email : sugan.bpt@gmail.com

PDC : 02 Years

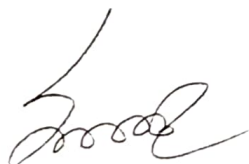
Cost : **Rs. 51,85,388/- (Rupees Fifty One Lakhs Eighty Five Thousands Three hundred and Eighty Eight only)**

3 The grant shall be spent as follows:

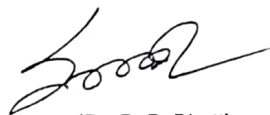
Grants	1 st Yr IC	2 nd Yr IC	Line Total
(a). Research Staff : Junior Research Fellow-02 Nos.	9,22,560	9,22,560	24,45,120
Project Associate II-01 No	3,00,000	3,00,000	
(b). Non-expandable equipment and stores	13,00,000	3,20,000	16,20,000
(c) Expendable stores, chemicals etc.	2,00,000	70,000	2,70,000
(d). Contingencies	50,000	50,000	1,00,000
(e). TA/DA (including TA/DA of specialist/ monitors for the project)	50,000	50,000	1,00,000
(f). Overhead charges	4,04,713	2,45,555	6,50,268
Total	32,27,273	19,58,115	51,85,388

Grant Total = Rs. 51,85,388/- (Rupees Fifty One Lakhs Eighty Five Thousands Three hundred and Eighty Eight only)

4. The project will last for **02 years** from the **date of release of the first installment by the PCDA (R&D)** and it will be governed by the terms and conditions given overleaf.
5. The deliverables of the project are:-
 - a. Hybrid (EEG, EOG, EMG) biosignal data acquisition system.
 - b. Optimum patient-specific data acquisition protocol for BCI based external device control.
 - c. Advanced signal processing, classification and control algorithm for control of mobility assistive device.
 - d. Technology for biosignal based control of external devices such as exoskeleton, prosthetic arm, wheelchair, rehabilitation devices, etc.
 - e. Hybrid (EEG, EOG, EMG) biosignal based system for control of mobility assistive device.
6. This sanction issues in exercise of powers conferred to Life Sciences Research Board vide Govt. of India, Ministry of Defence letters No. DBAS/48222/RD-81/784/D (R&D) dt 06 Mar 1998, as amended from time to time and in terms of Sl. No 3.1 of Gol, Ministry of Defence letter No. DRDO/DFMM/PL/83226/M/01/1976/D (R&D) dated 18th Dec 2019.
7. The expenditure will be debited to Major Head 2080 - Defence Services- Research & Development, Minor Head 004- Research & Development, and Code Head 852/05 of the Defence Services Estimates.
8. This is issued with the concurrence of IFA (R&D), New Delhi vide their U.O. No. IFA/R&D/0031/LSRB/2021/321, dated 23.07.2021
9. The sanction code is DGTMLSRB/GIA/21-22/ 0122, dated 02.09.2021
10. All Interests or other earnings against Grants – in – aid or advances (other than reimbursement) released to any Grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalization of the accounts. Such advances should not be allowed to be adjusted against future releases.
11. **Interest accrued to be refunded to DRDO through E-MRO in favour of CDA (R&D), New Delhi.**
12. **Sh. K. Mohanavelu, Sc- F, DEBEL, Bangalore will be the facilitator. He will be visiting the institute for periodical monitoring of the Project.**
13. Closure Report: On completion/termination of the project, 03 copies of consolidated closure report (soft & Hard copy) should be submitted within 03 months to LSRB along with statement-2 (Statement of expenditure) & statement-3 (Utilization certificate) duly audited from the Audit Authority of institution/organisation signed in ink in duplicate.



14. Contingent bill (in triplicate) for the release of grant **Rs. 32,27,273/- (Rupees Thirty Two lakhs Twenty Seven thousands two hundred seventy three only)** duly completed and signed on revenue stamp with official seal by the competent financial authority of the institute along with ECS mandate form may please be forwarded to LSRB immediately for onward submission to PCDA for payment.



(Dr. R. P. Bhatt)
Member Secretary, LSRB

Copy to :-

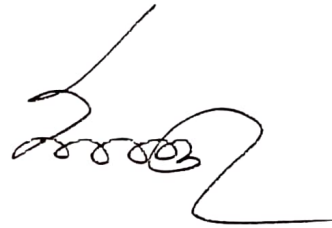
- i) PCDA (R&D), DRDO Cell, West Block-V, R. K. Puram, New Delhi-110066
- ii) IFA (R&D), 66 m DRDO Bhawan, New Delhi-110011
- iii) DGADS, 'L-2' Block, Church Road, New Delhi-110011
- ✓ iv) Dr. M. Sasikala, Professor, Anna University, Chennai – 600025
- v) Chairman Spl Panel LS&BD and Director, DEBEL, Bangalore
- vi) Sh. K. Mohanavelu, Sc- F, DEBEL, Bangalore



i) Terms and Conditions:-

- a. The grant will be spent exclusively for the purpose for which it is given and the yearly progress of the project will be reviewed periodically by Specialist Panel.
- b. PI to ensure that the laboratory guidelines for genetic engineering, animal experimentation and medical ethics issued by DBT, Animal Welfare Division (CPCSEA) and Ministry of Health & Family Welfare, Govt. of India, respectively and any other statutory issues related to the experiments are adhered to.
- c. The first installment shall be released on receipt of Contingent Bill duly signed by PI and Administrative Authority of the Grantee Institution.
- d. Prior approval of LSRB shall be required to change the funds/sanctioned. **Any excess payment without prior approval of DRDO will be borne by the Grantee Institute.**
- e. **LSRB reserve the right to terminate the grant at any stage**, if convinced that the grant has not been properly utilized or appropriate progress has not been made / achieved.
- f. The procurement of equipments, as per rules and regulations of the grantee institution, shall be strictly as per approved list as projected in the proposal.
- g. Appointment of staff shall be as per rules and regulations of the grantee institution and selection proceedings, joining report and qualification of selected candidates be sent to LSRB. Govt. regulations be followed, as applicable.
- h. The research staff is only for the duration of the project. DRDO holds no responsibility for further employment/absorption of the staff.
- i. Statements of account duly certified by the executive financial authority of the institution and audited by the audit competent authority is required to be submitted along with the annual technical progress reports.
- j. A list of inventory of capital equipments purchased out of this grant shall be intimated year wise along with its cost and source of procurement to LSRB Sectt. On completion of the project the grantee institution may forward the consolidated list with a request, in any, for retention of any equipment for another project of in-house R&D, with due recommendation of their executive Authority.
- k. When demanding monies, subsequent to the first installment, the grantee institution shall send the audited Statement of Expenditure, Utilization Certificate, in the prescribed formats, and another certifying that the unspent balance of the previous installments has either been carried forward into the subsequent demand, or has been surrendered to DRDO. Any interest generated shall be reflected in statement of accounts and refunded to LSRB.
- l. The accounts maintained by the grantee institution shall be available for inspection by the Comptroller & Auditor General of India / PCDA (Internal Audit).
- m. Monies remaining with the grantee institution at the close of the project (including by short closure) shall be returned to DRDO without any delay.
- n. **In case of the PI leaving the institution or going abroad etc., the Executive authority of the grantee institute to whom the Project has been sanctioned will ensure that the PI submits detailed technical and financial report of the work done before his/her relieving.**
- o. **The PI will submit closure report to LSRB after completion/closure/termination of the project.** The report must be attached with all necessary certificates and audited financial details.
- p. Following policy on the **intellectual properties** generated under the scheme will be taken care of :-
 - 1) All Foreground Information and Foreground Intellectual Property, created during the performance of the Project, whether or not legally protected, shall be owned jointly by DRDO and Grantee Institution. DRDO and Grantee Institution shall be deemed to have a royalty-free license to use such joint Foreground Information and Foreground Intellectual Property Rights for their own R&D purposes.
 - 2) Grantee Institution shall not publish any research paper covering Foreground Information generated during the performance of the Project before seeking written consent from DRDO to assure that no proprietary information is released and no legal rights covering Foreground Information are jeopardized. Normally, such decision for publication shall be provided by DRDO within 30 days of receipt of such request from Grantee Institution. Grantee Institute shall promptly report to DRDO about any Intellectual Property generated during the performance of the Project. DRDO and Grantee Institution shall confer and consult each other regarding preparation, filing, prosecution, maintenance of Intellectual Property Rights applications including patent applications covering Foreground Information, generated during the performance of the project. DRDO shall be responsible for filing, prosecution, grant and maintenance of such Intellectual Property Applications including patent applications and Grantee Institute shall render all possible help to DRDO regarding the same.

- 3) DRDO shall also bear all expenses related to filing, prosecution, grant and maintenance of such Intellectual Property Applications including patent applications.
- 4) Grantee Institution may commercially exploit any Foreground Information and Foreground Intellectual Property Rights, generated during the performance of the Project, whether or not legally protected, for purposes other than Government Applications upon conclusion of the separate agreements to be negotiated between Grantee Institution and DRDO. Grantee Institution shall maintain an account of its incomes arising out of such commercial use and any royalty income shall be shared equally between DRDO and Grantee Institution.
- 5) Notwithstanding any provisions mentioned above or any future licensing agreements, DRDO shall be deemed to have all rights including a nonexclusive, irrevocable, royalty-free, world-wide perpetual license for the unlimited commercial development, series production, continuing engineering support, product improvement, or have developed, any Foreground Information and Foreground Intellectual Property, generated during the performance of the Project, whether or not legally protected, for the purposes of Government Applications including armed forces and paramilitary forces.
- 6) Whenever DRDO informs Grantee Institution that the interest of national security requires Grantee Institution to refrain from commercially supplying product/process based upon any Foreground Information and Foreground Intellectual Property, generated during the performance of project, whether or not legally protected, to any particular third parties, or stipulate conditions in such commercial sale, Grantee Institution shall abide by DRDO requirements.
- 7) DRDO shall not be responsible and shall not accept any liability for infringement, innocent or otherwise, by PI or the Grantee Institute of the Intellectual Property Rights of third parties.
- 8) The term of the above provisions shall survive the term of the Project.

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke at the end.