DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA
SURATHKAL, SRINIVASNAGAR - 575025, MANGALORE,
KARNATAKA, INDIA

Ref No: NITK/CIDS/07-2026/CMCK/ARG-ANRF/PA Date: 06.07.2026

Advertisement for Project Assistant

Applications with complete biodata are invited for temporary posts of **two** Project Assistants to work under a research project funded under the Advanced Research Grant (ARG) by the Anusandhan National Research Foundation (ANRF), Department of Science and Technology, Govt. of India. The selected candidates will carry out cutting-edge research in the development of an IoMT-based platform for robot-assisted rehabilitation, integrating embedded hardware, physiological signal acquisition, real-time control, and cloud-enabled web interfaces at the Centre for Interdisciplinary Studies at NITK Surathkal. The work is carried out in collaboration with IIT Goa and Kasturba Medical College (KMC), Mangalore.

Project title and Reference No: Development of a Internet of Medical Things Platform for Rehabilitation with Integrated Physiological Data Capture and Control Interface (Ref. No: ANRF/ARG/2025/007031/ENS).

Principal Investigator:

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Co-Principal Investigators:

Dr. Deepu Vijayasenan, Dept. of Electronics and Communication Engineering, NITK Surathkal, Mangalore, India.
Dr. Sheron Figarado, School of Electrical Sciences, IIT Goa, Goa

Collaborator and Consulting Physician: Dr. Shyam Krishnan, Department of Physiotherapy, Kasturba Medical College, Mangalore, India.

Essential Qualifications

- PA-1: Embedded Profile
  - B.E./B.Tech in Electrical/Electronics/Computer Sciences/ allied disciplines - minimum 60% aggregate percentage or 6.5/10 CGPA (relaxation as per Govt. of India norms for reserved categories).

- PA-2: Mechanical Design Profile
    - B.E./B. Tech in Mechanical/ Aerospace/Mechatronics/ allied disciplines – minimum 60% aggregate percentage or 6.5/10 GPA (relaxation as per Govt. of India norms for reserved categories)
- The candidate should either (i) have a valid GATE score OR should (ii) have at least 6 months experience in area similar to this project.
  Age Limit: 28 years (relaxation as per Govt. of India norms for reserved categories).

Desired Skills

PA-1: Embedded Profile

- Hands-on experience with embedded systems (ESP32, Raspberry Pi, Arduino or similar microcontrollers/SBCs).
- Familiarity with sensor interfacing — IMUs, EMG electrodes, rotary encoders, force/torque sensors.
- Knowledge of real-time data acquisition, signal filtering, and serial/wireless communication protocols (UART, SPI, I2C, WiFi/BLE).
- Experience with Python/C/C++ for embedded firmware or data processing.
- Exposure to web-based or cloud-based IoT platforms is an advantage.

PA-2: Mechanical Design Profile

- Sound knowledge in mechanical design, finite element methods
- Proficiency in computer aided design using CATIA, Solid works, AutoCAD.
- Proficiency in simulation using ANSYS or similar software
- Knowledge in fabrication and mechatronics related work using sensors and motors.

- Prior work experience in rehabilitation engineering, assistive devices, or biomedical instrumentation is desirable.
- Ability to work in a multidisciplinary team; good communication and documentation skills.

Salary and Duration

- INR 27000 per month (consolidated) + HRA (as per norms).
- The selected candidate will be appointed initially for one year (on contract) and the services will be extended next year based on the performance review and is co-terminus with the project. The candidate is encouraged to apply for M. Tech (Research) at NITK, Surathkal.

How to apply

Step-1:
Duly fill the application form (page 4 to 6 of this document, a doc format is available HERE) and take a scan. This, along with the scan of other documents (given as a checklist in the last page of the application), create a compressed/zip file. Name the file as "*yourFirstname_Lastname_PA.zip*"
Step-2 (to be completed on or before 17th July 2026):
You are required to fill-up the basic details through a google form link:
https://docs.google.com/forms/d/e/1FAIpQLScjsFokN0FKGJtjm5iVn6eD-vWCnMgOwmaRoyFKKrTy5xY6ww/viewform?usp=header
Written Test/Interview details will be emailed to suitable candidates only. TA/DA will not be paid for attending the interview. The positions are available immediately.

More about the Project

Total Duration: 3 Years

The aim of this project is to develop a modular, cloud-enabled Internet of Medical Things (IoMT) platform that integrates rehabilitation/assistive devices with real-time physiological data acquisition, intelligent control, and a secure web-based interface for clinicians, therapists, and patients. The project builds upon an existing functional Knee-Ankle-Foot Orthosis (KAFO) prototype developed for children with Cerebral Palsy, and extends its capability through a connected digital platform.

The project is multidisciplinary by nature and will involve:

Embedded systems and hardware integration — interfacing sensors (IMUs, surface EMG electrodes, rotary encoders, force/torque sensors) and actuators with microcontrollers (ESP32, Raspberry Pi) for real-time data capture and device control.

Signal acquisition and processing — development of multi-modal data pipelines for kinematic, kinetic, and biomedical signals including filtering, feature extraction, and synchronization across sensor modalities.

Web application and cloud backend development — building a role-based, secure web platform with dashboards for clinicians, patients, and technicians, supporting real-time visualization, remote monitoring, and therapy management.

AI and data analytics — implementation of machine learning and adaptive algorithms for patient progress evaluation, movement intent detection, and personalized therapy recommendations.

Integration with the NITK exoskeleton — deploying and validating the platform with the existing KAFO device during structured pilot sessions at the clinical site.

This collaborative project demands close interaction with physiotherapists and medical practitioners at Kasturba Medical College (KMC), Mangalore, and regular coordination between NITK Surathkal and IIT Goa. A significant portion of the work involves travel to KMC for prototype testing, pilot study sessions, and clinical feedback collection. The Project Assistants are expected to actively contribute to hardware-software integration, field trials, and research dissemination through publications and conferences.