

10

FORM RDRM C
PROPOSAL FOR APPROVAL FOR TAKING UP CONSULTANCY

Please refer to Statues SA38 for more details

1. **TITLE OF PROPOSED PROJECT:** Feasibility study of sensing upper body Muscle Activation at Wrist
2. **i)Principal Consultant**
 - a. Name: Dr.Jivan S.Parab
 - b. Designation: Associate Professor
 - c. Department: Electronics Programme, School of Physical & Applied Science**ii)Co-Counsultant**
 - a. Name: Dr.Marlon D.Sequeira
 - b. Designation: Assistant Professor
 - c. Department: Electronics Programme, School of Physical & Applied Science
3. **CLIENT:**
 - a. Firm: Fitness Konnect
 - b. Address for Communication : S1, Krishnavilla, Suryanagar Colony,
Sancoale, Mormugao, Goa - 403726
 - c. Contact person in the Organization : Mr. Akshay Kumar
4. **Names, Designation and Department of the staff members involved in this consultancy (including students)**
NA
5. **Name and Address of Outside Expert (if any) involved in the Consultancy :**Nil
6. **Whether the Consultancy shall make use of any University facilities such as equipment or laboratory**
Computer Facility
7. **Time Schedule**
 - a. Duration (Weeks, months or years) : 04 Months
 - b. Starting Date: 20th June 2022
8. **Estimate of Charges**
 - a. Honoraria to consultant(s), staff of laboratory and others.
Total Honoraria to Consultant : Rs.80,000 (Shared by both Counsultant)
Manpower (Project Assistant) : Rs.80,000 @ 20,000 per month
University Share (as per SA38.2.vii): Nil (As Honoraria recived is less than 30%)
 - b. Cost of materials used in carrying out consultancy.
Nil.
 - c. Computer charges.
Rs. 10,000
 - d. Charges for use of laboratory equipment and instruments.
Nil
 - e. T.A./D.A. for visits to sites.
Nil
 - f. Administrative/overhead charges to be paid to the University (@15%)
@ 15 % on total of 1,70,000= Rs. 25,500
 - g. Miscellaneous.
Nil

Final Total: Rs 1,95,500

9. Give a brief description of the work to be done that includes scope of the work, Receivables from the client and Deliverables to the client. (As annexure I)

Declaration by Consultant(s)

- A. I/we shall ensure that the proposed consultancy project does not affect my/our regular academic, research and related activities and other duties which are assigned to me/us by the University.
- B. Number of Consultancies at present with me/each one of us do not exceed four in number.
- C. This is to certify that there is no close relationship between me/us and the client funding the consultancy project, or any vendor to whom payments are to be made from the consultancy project funds, or any such issue leading to conflict of interests.
- D. We have agreed to share the Honorarium as per following distribution.

Name Proposed share

- | | | |
|------------------------|-----|---------------|
| 1. Dr. Jivan Parab | 50% | Consultant |
| 2. Dr. Marlon Lequeira | 50% | Co-consultant |

- E. I/we undertake to abide by all the provisions of Statute SA-38 in connection with the Consultancy project proposed herewith.

(Consultant)

(Co-consultant)

Signatures of Consultants

(separate forms may be submitted if the consultants are from different department)

C/14

Declaration by Head of the Department

A. For the present consultancy the CLIENT Fitness Konnect
has requested the services of Dr. Jivan Parab (Associate Professor)
& Dr. Marlon Azeiteira (Assistant Professor)
(letter may be placed for records) and these faculty members may be permitted to take up the consultancy work.

- B. Based on the expertise available in the Department, following member(s) of the Department have been assigned the present consultancy work.
- a. Dr. Jivan Parab
 - b. Dr. Marlon Azeiteira
 - c.

Signature of the Head of the Department
Dean, SPAS

The present consultancy project has been registered in RDRM and the reference number is

GU/D-RDRM/Consult./FT/JSP/SPAS/2021-22

Signature of In-charge RDRM

08/06/2022

Approved/Not Approved

Vice Chancellor

Particulars	Cost in Rs.	Total in Rs.	Justification
Manpower	80,000	80,000	Required for the project
Consultancy	80,000	80,000	Shared by the Institute
Printing & Stationery	10,000	10,000	For the project
University Share	Nil	Nil	Not applicable
Total		1,70,000	
University Share		25,500	
Final Total		1,95,500	

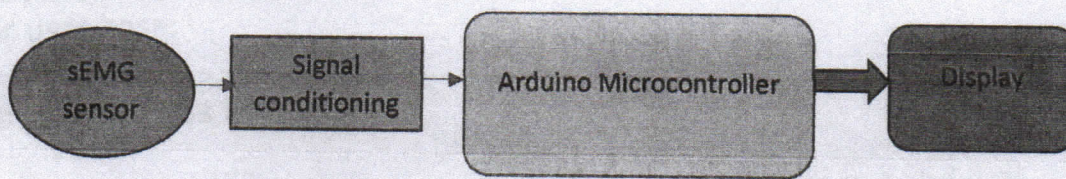
Feasibility study of sensing upper body Muscle Activation at Wrist

Principal Consultant: Dr. Jivan S. Parab , Associate Professor in Electronics, SPAS, Goa University
Co-Consultant: Dr.Marlon Sequeira, Assistant Professor in Electronics, SPAS, Goa University

Brief Description:

The objective is to create an EMG circuit & find variations in signal that will help understand the flow of muscle signals(electrical or mechanical). when any of the muscle in the upper body is activated. This signal should be tapped from one place of the body. It would be great if you can tell us the feasibility of the project whether it can be executed or not.

System Block Diagram



The system consists of surface EMG sensor placed on wrist which is interfaced to Arduino controller module which the heart of the system. The hypothesized weak signal is proposed to be picked up at the wrist by the above system. This weak signal is then amplified by signal conditioning block. Preprocessing an active filtering is used to extract the relevant features from raw EMG signal.

Here the various upper body muscle activity will be performed to track the changes in the emg signal at wrist. The signal will be processed on the microcontroller and visualized using the hypertext terminal.

Budget Proposal

	Details	Cost in Rs	Total in Rs	Justification
Manpower	Project Assistant	@20000 for 4 months	80,000	Required to perform the Analysis
Consultant Fee/Honoraria (Dr.Parab&Dr.Marlon)		80000	80,000	Shared Equally by Both Consultants
Computer Charges		10000	10000	
University Share			Nil	Honorarium Amount is less than 30% of Gross Salary
Total			1,70,000	
Overhead Charges(@15%)			25,500	
Final Total			1,95,500	

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4/6

Scope for Research In biomedical space

About:

- ☐ Fitness konnect is a Goa based Fitness technology startup providing SaaS based solutions for the rapidly growing personalized fitness market.
- ☐ We have an analytical tool i.e. fitness band which is a health tracker for our user base.

Current status(Fitness band):

The requirement here is to enhance the capabilities of the fitness band that we have developed.

Current it includes:

1. Pedometer interfacing
2. Heart rate sensor

Features it includes:

1. It calculates the steps & intensity of workouts carried out by the customer.
2. This helps the customer track his/her type of workouts, the strain they have put on their body & the sleep/recovery they should get.

Requirement:

Now we wanted to enhance our band capabilities by introducing one important feature for which the research will be carried out:



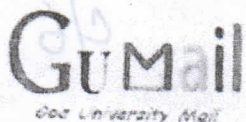
+91 93562 68539
+91 94058 89881



mail@fitnesskonnect.com
mail.fitnesskonnect@gmail.com



S1, Krishnavilla, Suryanagar Colony,
Sancoale, Mormugao, Goa - 403726



Marlon Sequeira <marlon@unigoa.ac.in>

Fwd: Muscle activation Research requirement

Dr. Jivan Parab <jsparab@unigoa.ac.in>

To: Marlon Sequeira <marlon@unigoa.ac.in>

Tue, Jun 7, 2022 at 11:26 AM

Dr. Jivan S. Parab
Associate Professor of Electronics
School of Physical and Applied Sciences
Goa University-403206
Mob:9823553661/8208330079
office:8669609218

----- Forwarded message -----

From: **Fitness Konnect Co** <mail.fitnesskonnect@gmail.com>

Date: Mon, May 2, 2022 at 11:08 PM

Subject: Muscle activation Research requirement

To: J.S. Parab <jsparab@unigoa.ac.in>

Hi Jeevan,

Apologies for the delay. Got tied up.

PFA find the official detailed requirement from our side as discussed in the meeting with you & Marlon in person. Following up on that, we have decided to ahead with EMG research first since that is in itself going to take a good amount of time. The accelerometer part is something that we will be implementing from our internal team at the start itself.

Therefore please give your pricing & timeline on the requirement attached herewith.

Hope to hear from you soon.

--
Regards,

Akshay kumar

+91 7709792034

Disclaimer visit: <https://www.unigoa.ac.in/docs/disclaimer.html>

Research requirement.pptx (3).pdf
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21, Krishna Villa, Sanyasara Colony
Sancos, Mormugao, Goa - 403716

mail@fitnesskonnect.com
mail.fitnesskonnect@gmail.com



+91 93261 68232
+91 94028 88881

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c/y

a. Muscle Activation:

Overview: Here basically we want to track the muscles being targeted while performing a workout through the wrist-worn fitness band.

For eg: If I go to a gym & i am performing a leg workout then the band i am wearing should be able to detect if the exercise i am doing is putting strain on my leg muscles or not.

Challenge: While there are plenty of solutions to track muscle strain/activation, but they want the user to use those solutions on that specific muscle itself.

While our idea is to do it through the band which is worn on the wrist. So the challenge & the question is that is it possible to track a leg muscle strain/activation while doing a leg exercise through a fitness band worn on the wrist? Similarly for other muscles as well.

Therefore this is the first area of research called muscle activation tracking.

the plan for going ahead with this will be starting with the muscle groups targeting upper body, specifically biceps, chest, triceps & back.

First phase we can start with only biceps & chest.

The route to be used for this research program will be through emg.

Objective: The task is to create an emg circuit & find variations in signal that will help understand the flow of muscle signals(electrical or mechanical)

when any of the muscle in the upper body is activated. This signal should be tapped from one place of the body.



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