

Resumo da Proposta de Ideia Para Trabalho Final de Mestrado - 2023/2024

Código: TFM11

Título da proposta de TFM: Intelligent Sports Weights

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Natureza da proposta de TFM:

☒ Dissertação ☐ Trabalho de Projecto ☐ Estágio de Natureza Profissional

Mestrado(s) onde a proposta é oferecida:

☒ MEET ☒ MEIC ☒ MEIM

Resumo da proposta de TFM:

- Performing fitness exercises is not executed correctly can lead to injury. The scope of this project is to incorporate an embedded system on a pair of weights (deadlifts) to monitor the correctness of the exercise execution. The embedded system to be used is already available is able to acquire motion (accelerometers) and communicate the sensor readings via bluetooth to a host. The host can be either a mobile phone or a computer and is responsible for two tasks: 1) control a point on screen with the weight's movement; 2) validate the movement via a Neural Network. The work to be performed consists of: - Extracting data from the sensor via bluetooth; - Dataset generation; - Selection and training of the most suitable neural network; - Program an application to present different exercises (challenges) to the user; - Keep tracking of the user's performance (score); At the end of this project it is expected to have a demonstration of the system, a written report (thesis) and a scientific paper detailing on the developed work and its results.

Observações e Requisitos:

sensor fornecido pelo docente: <https://pt.aliexpress.com/item/32859423925.html>

Palavras chave: Neural Network; Embedded Systems; Motion classification

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