**Tr.AI.ner**

**BACKGROUND**

We all like to be in shape, but we find many barriers:

* We do not know how to train (even having machines in a gym)
* We do not feel like doing it alone
* We do not know routes to avoid the routine running
* We do not see improvements in our training because we do not know how to train or because we do not know how to eat healthy
* We do not have an incentive that urges us to do so

We could continue, but in the end it will still be excuses (some rightly)

Some people decide to hire the services of a personal trainer, but they tend to be costly services that are only profitable for professionals.

*"Tr.AI.ner is an electronic* ***assistant*** *that provides personal trainer and" partner "functions at low cost."*

Looking inside the current market we can find a device that uses AI to improve the race and cycling called [Vi](https://getvi.com/pages/home) (149 $) of LifeBEAM. The differences are evident due to their scope of application.

On the other hand we found the [Gymfitty](http://www.gymfitty.com/) application, much closer to the idea, but it has not been completed and still lacks some desirable functionalities (accompaniment and diet control)

To do this, Tr.AI.ner implements the scientific and proven method of training and diet control used and tested by D. Jorge Lozano, personal trainer and trainer of athletes for national championships.

**DEVELOPMENT**

This implementation will be made by recording data of various kinds (biometrics, personal tastes, training history, etc ...) on which Machine Learning (ML) and Artificial Intelligence (AI) techniques will be applied to achieve two objectives:

Recommendations of exercise routines

Cost control and nutrient intake

This **provides two highly specialized functionalities** that are only available to highly trained personnel in the matter:

1. **What exercises should I do at each moment** (type, intensity, transfer, transition between them, etc ...) **within my preferences and needs**
2. **How and when should I feed myself** to achieve my personal goals

**Requirements:**

For an adequate use of Tr.AI.ner you need:

1. An implementation environment of the App itself (for example smartphone)
2. Biometric sensor (heart rate monitor)

**Set up:**

Obviously the first step will be to install the application.

Once the installation is finished, the next step will be to calibrate it from two different points of view:

* Objective calibration: It is done by providing three parameters:

1. [VO2 maximum](https://es.wikipedia.org/wiki/VO2_m%C3%A1x): The "[Queens College Step](https://www.topendsports.com/testing/tests/step-queens.htm)" test can be carried out by anyone (avoiding an effort test and spirometry that is more expensive and the variation is negligible). This value will have to be updated every 2 or 3 months, which is how long it takes for the training to take effect.
2. Body mass: It will serve us to calculate the metabolic equivalent ([MET](https://es.wikipedia.org/wiki/Met_(unidad_de_medida))) that will help us to know how many calories you spend training as a function of the pulsations. This value will be updated each with the assiduity preferred by the user. It is calculated with the scientific formula for the MET.
3. Date of birth: It will be used to know the maximum heart rate ([HRM](https://es.wikipedia.org/wiki/Frecuencia_card%C3%ADaca)) using the [Tanaka formula](https://www.todomountainbike.net/art/formula-de-tanaka-para-calcular-fcm).

* Subjective calibration: It is about adding to the application our personal tastes of both exercises and food:

1. A selection of preferred exercises (direct calibration) will be made or the exercises will be evaluated to define the tastes. Normal will be a mixed solution.
2. Foods will be classified into three groups:
   1. Desirable foods
   2. Acceptable foods
   3. Undesirable foods

The list of foods that will be offered will be extracted from applications such as [FatSecret](https://www.fatsecret.es/calor%C3%ADas-nutrici%C3%B3n/) or [MyFitnessPal](https://www.myfitnesspal.com/es).

**Using Tr.AI.ner:**

The application will provide recommendations of:

* Exercises: depending on your tastes (they will be extracted from links that will send us as Darebee)
* Diet: what and when you should eat according to your tastes:
  + Desirable foods will preferably be chosen
  + If the diet is not completed, acceptable foods will be added
  + If the diet is not completed, foods that are not among the undesirable will be added
  + In the last case it will be completed with undesirable foods

These recommendations will not be on demand, but will encourage the user through notifications following the lifestyle detected (it is the usual time to play sports, I will motivate you).

At this time the accompaniment is provided, but it is not limited: it will be given option to the search users of fatigue partner. These users who accept this treatment of their data may receive invitations to organize user groups that are detected follow similar training routines.

Motivation will use gamification techniques (achievements, medals, payment content credits, etc ...)

*"Tr.AI.ner, your best training partner."*

Application:

* The above ones:
  + Influencers
  + Multiple client monitoring by Personal Trainers
  + Gym offer as a service (App and biometric sensor). Trainers can monitor clients and add Gym Exercises.

**API Status:**

API site: <http://227c3092.ngrok.io>

URLs (BMJn5ELzhBWZlf6bCWY1swg6BXx1 is the ID of the only user I have uploaded so far):

* Exercise List: <http://227c3092.ngrok.io/exercises>
* User Data: <http://227c3092.ngrok.io/user/BMJn5ELzhBWZlf6bCWY1swg6BXx1>
* Training Recommendations list: <http://227c3092.ngrok.io/session/BMJn5ELzhBWZlf6bCWY1swg6BXx1>
* Realized Trainings List: <http://227c3092.ngrok.io/session/done/BMJn5ELzhBWZlf6bCWY1swg6BXx1>
* Deletion of Recommendations: <http://227c3092.ngrok.io/sessionDelete/BMJn5ELzhBWZlf6bCWY1swg6BXx1>