



LogMeal

Food analysis with a snap!

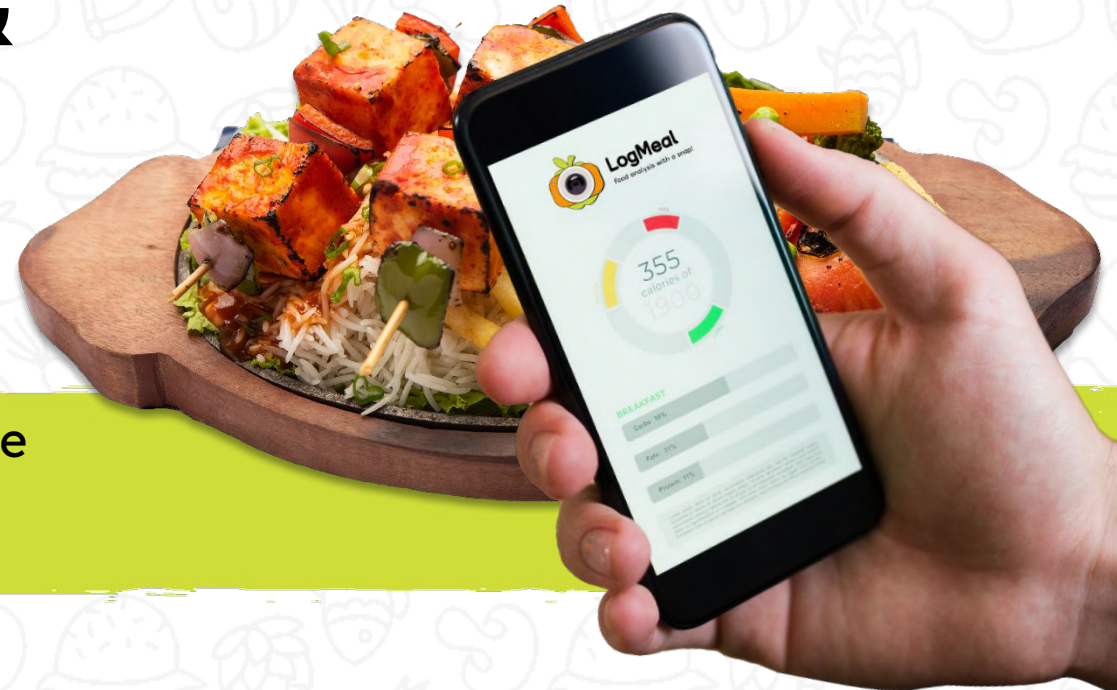
DIGITAL FOOD INTAKE RECOGNITION & MONITORING

USING FOOD PICTURES

The system that nutrition experts need to boost the quality of information and improve people's life.

**EAT BETTER.
LIVE BETTER.**

www.logmeal.com



THE PROBLEM. PEOPLE'S HEALTH.



Source : World Health Organisation 2019 report



About 20% of the world's adult population are **OBESE**



Nutritional factors are implicated in 30-40% of **CANCERS**



About 422 million people worldwide have **DIABETES**



17.9 million deaths due to **CARDIOVASCULAR** diseases

OUR MISSION. EAT BETTER. LIVE BETTER.

THE PROBLEM. NUTRITION EXPERTS CHALLENGES.



- Users **Forget** what they eat
- Don't know the **Ingredients**
- Don't know the **Quantities**
- **Dietary** preferences and needs
- Resistance to **change**



- Need to **Calculate Manually**
- Set **Objectives** and follow-up
- **Own Recipes** developed by experience
- Different **Monitor Level** for each user
- Give **Personalized** service to all users



- **Lack of digital tools for:**
 - **Monitoring** and follow-up
 - **Teach & Change** habits
 - **Improve & Control** Patients
 - **Manage** new users digitally
 - **Loyalty** programs



LogMeal

Food analysis with a snap!

“Any sufficiently advanced technology is equivalent to magic.”

—ARTHUR C. CLARKE

LogMeal is transforming the Nutrition industry by facilitating Artificial Intelligence, computer vision and Data Processing technology solutions providing fundamental value to professionals that allows them to offer personalized and tailored solutions for people, in the field of nutrition, for health, sport & wellness.

LogMeal transforms self-service restaurants & catering companies with their self-checkout system for auto-payment

Our societal & economic impacts can be associated to the goals SDG3, SDG12, SDG17.

THE SOLUTION. "LOGMEAL API" ALGORITHMS FOR FOOD RECOGNITION.



FOOD TYPE DETECTION

Detecting prepared foods, beverages, fresh, vegetables, fruits and more.



FOOD GROUP DETECTION

Detecting basic food groups. Ideal for generating food records and food diaries.



SINGLE PLATE RECOGNITION

Detecting +1,300 dishes local and international from any cuisine in the world.



SEVERAL DISHES RECOGNITION

Detecting several dishes and all the ingredients in the dish.



INGREDIENT INFORMATION

Extract the list of ingredients present in the dish from the image as well as their standard quantities.



NUTRITIONAL INFORMATION

Providing nutritional information (37 Micro and Macro Nutrients) based on ingredients.



FOOD WASTE

With a second picture (after) get all information about food waste.



FOOD QUANTITY ESTIMATION

Calculating quantity of different food elements directly from the pictures.

DIGITAL FOOD INTAKE RECOGNITION & MONITORING integrated into any HEALTH-SPORTS-WELLNESS APP, WEBSITE or SOFTWARE.

WHAT LOGMEAL API ALGORITHMS TELLS YOU USING A PICTURE.



Food Type:

Prepared dish



Food Groups:

Noodles/pasta, meat, dairy products



Dish:

Spaghetti carbonara



Ingredients:

Eggs, olive oil, garlic, black pepper, white wine, parmesan cheese, spaghetti, pancetta, grated pecorino



Nutritional info. (37 micro & macro indicators):

Energy 710,7 kcal, Protein 26,6 gr, Carbs 85,67 gr, etc.



Food Quantity:

Spaghetti Carbonara 273 gr.



FEATURES

All features are available on our website:

- ✓ Food Type Recognition
- ✓ Food Group Recognition
- ✓ Several Dishes Recognition
- ✓ Ingredients Information
- ✓ Nutritional Information
- ✓ Intakes' Ingredients Edition
- ✓ Recommended Daily Intake
- ✓ Remaining Daily Intake
- ✓ Intakes' Nutrition History
- ✓ Intakes' Occasion Detection
- ✓ Nutritional Goals
- ✓ Manual Intakes
- ✓ Custom Recipes
- ✓ Favorite Meals
- ✓ Units of Measurement
- ✓ Easy salt/sugar/oil Modulation
- ✓ External Managers (for Health Professionals)
- ✓ Food Restrictions and Diet Labels
- ✓ Variety Score
- ✓ Nutritional Scoring
- ✓ Recipe and Dish Recommendations
- ✓ Food Quantity Estimation
- ✓ Food Waste Estimation

NEW FEATURES

We are constantly working to improve our services based on the suggestions of our customers.

New Features - Recently Released

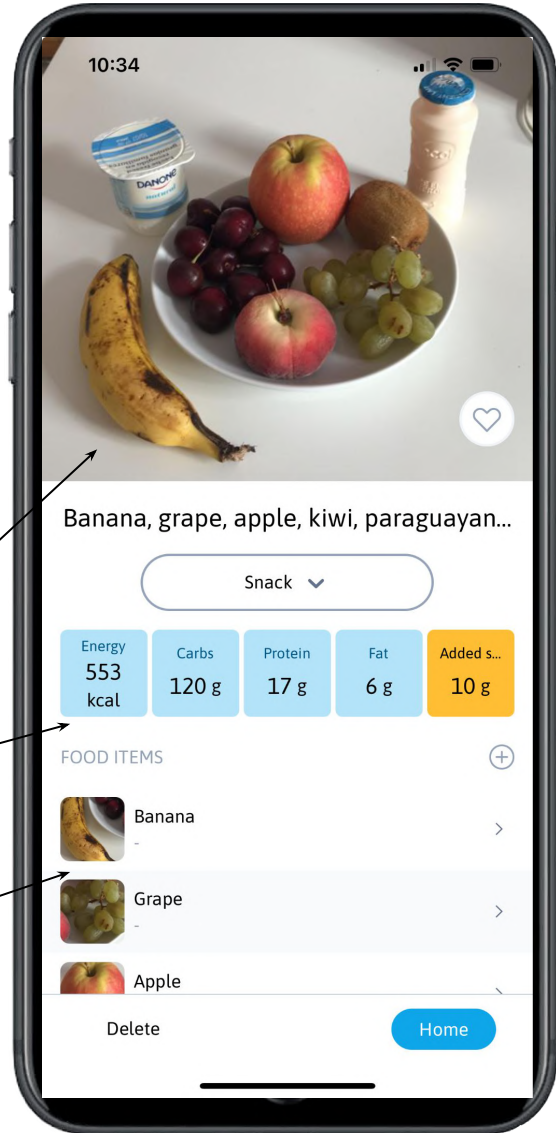
- ✓ Food preferences
- ✓ Food allergies / intolerances
- ✓ Dietary Variety Score
- ✓ Recommendation of Recipes (based on user preferences and history)
- ✓ Edition of consumed ingredients and quantities
- ✓ Asking dishes to users in the future, or in the past if missing
- ✓ Quantity estimation
- ✓ Leftovers
- ✓ Actual Intake (with 2 pictures: initial - final)

New Features - Work in Progress

- ✓ Personalized Food Recognition (based on history)
- ✓ Personalized Ingredients Recognition (based on history)
- ✓ Geolocation

THE SOLUTION.

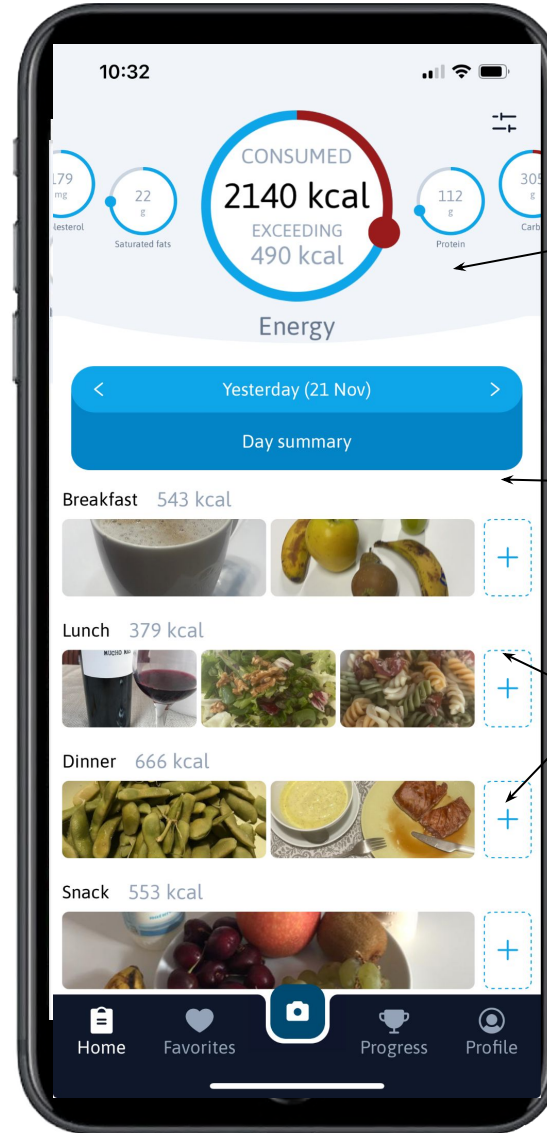
“LOGMEAL APP” USERS TAKE PICTURES & MANAGE OBJECTIVES.



PICTURE OF YOUR FOOD

NUTRITIONAL INFORMATION DETAILED

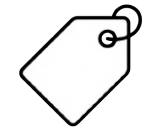
DETECTED FOOD ITEMS



OBJECTIVES
CALORIES
PROTEINS
37 MICRO+MACRO
INDICATORS

CALENDAR

ALL INTAKES,
BREAKFAST, LUNCH,
SNACKS, DINNER
(Including ingredients
per dish)



*Available
White Label

[WATCH DEMO](#)



The SHAZA for FOOD

Referrals: European project Validithi 2018 & Int. Papers



COMPARISON RESULTS

With all this in mind, in this project we compared the use of LogMeal's automated food recognition log with the nutritional values extracted by a 24-hour recall urine test. Here you can see the comparison of the results of one of the European projects we did with hospitals and universities in the Netherlands.

	<u>LogMeal algorithm</u>	<u>24-h recall</u>
Energy, kcal	1976 [1436-2896]	2157 [1754-2427]
Protein, g	81 [47-119]	81 [64-100]
Carbohydrate, g	216 [162-333]	243 [195-289]
Fat, g	73 [54-114]	88 [68-100]
Saturated fatty acids	32 [19-46]	30 [21-39]
Mono and disaccharide, g	98 [70-154]	52 [42-114]
Fibre, g	20 [14-27]	21 [16-26]
Sodium, mg	1954 [1514-2961]	1910 [1552-2472]
Calcium, mg	941 [661-1254]	1035 [622-1159]
Potassium, mg	3140 [2411-4692]	3171 [2651-3815]
Phosphorus, mg	1608 [960-1892]	1465 [1155-1661]

INTERNATIONAL PAPERS (+30 food-related papers):

Selected Food-Related Papers:

[paper_logmeal_1.pdf](#) , [paper_logmeal_2.pdf](#) , [paper_logmeal_3.pdf](#)

Listing of Dr.a Petia Radeva's (Full Professor UB) repository of AI Articles, Computer Vision, by Dr.a Petia Radeva

<https://dblp.org/pid/r/PetiaRadeva.html>

Papers List AI, Computer Vision, from Dr. Marc Bolaños PhD in Computer Vision "Deep Multimodal Learning for Egocentric Storytelling and Food Analysis"

<https://dblp.org/pid/147/3344.html>

Dr. Petia Radeva, professor and head of the Computer Vision Department at U.B. (University of Barcelona).

<http://www.ub.edu/cvub/petiaradeva/?p=36>

LinkedIn profiles:

Petia Radeva: <https://www.linkedin.com/in/petia-radeva-71651334/>

Marc Bolaños: <https://www.linkedin.com/in/marc-bola%C3%B1os-sol%C3%A0O-926b7555/>

Eric Verdaguer: <https://www.linkedin.com/in/eric-verdaguer-jimeno/>



LogMeal KIOSK

Touchless Self-Checkout System

- ✓ Menu Recognition
- ✓ Self-Checkout
- ✓ Nutritional Information
- ✓ *Actual Intake
- ✓ 100% connected
- ✓ Business Intelligence
- ✓ Plug & Play
- ✓ Cloud Solution

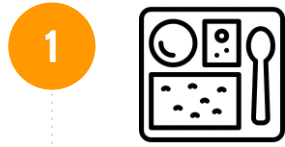


LogMeal Kiosk Payment + Actual Intake + Food Waste

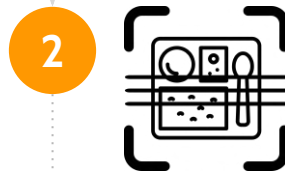
AT PREMISES



[WATCH DEMO](#)



PLACE & IDENTIFY

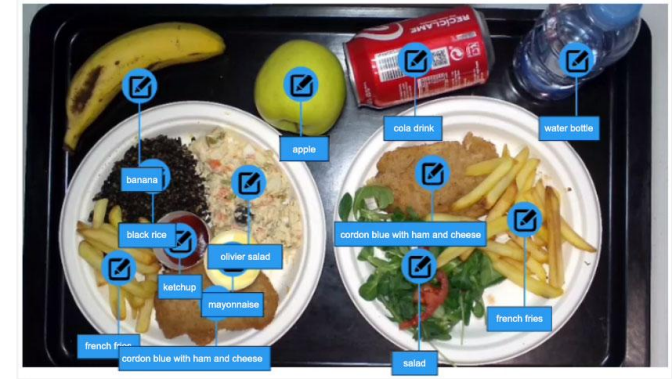
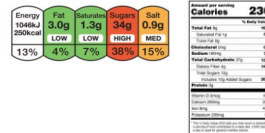


AUTO-SCAN
ALL DISHES

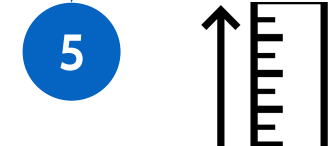
- Image processing of dishes
- Assign to user/patient
- Control what must be served



PAY & INFORM



AUTO-SCAN
AFTER SERVICE

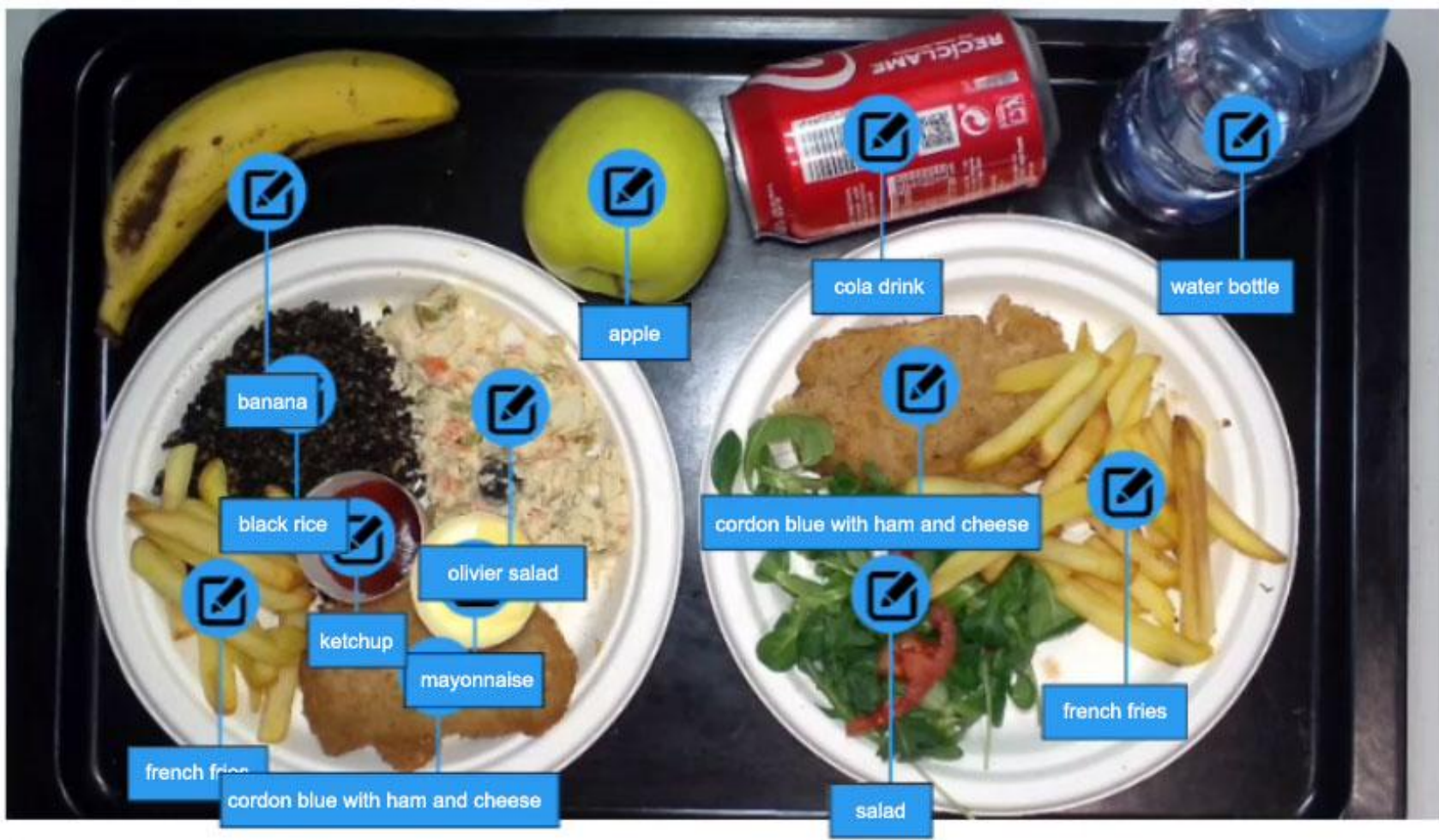


ESTIMATED
ACTUAL INTAKE
& FOOD WASTE

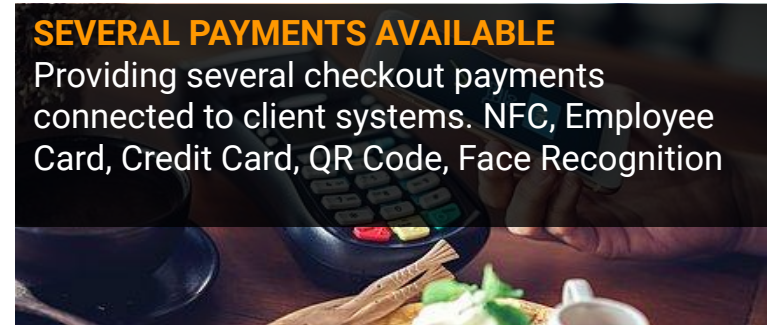
SCAN TO RECOGNISE & ASSIGN NUTRITION
One photo to analyze the user's tray.

ACTUAL INTAKE & FOOD WASTE
Second photo to analyze Actual Intake & Food Waste.

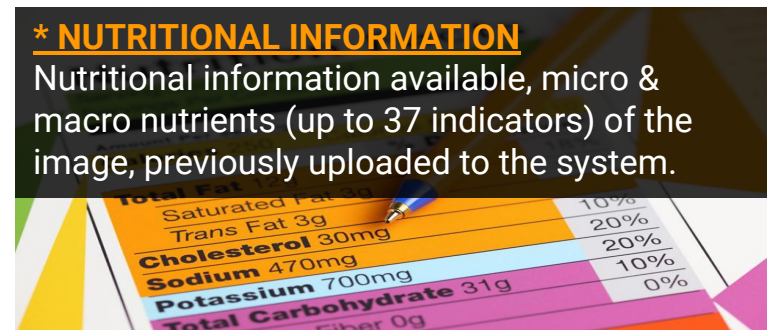
LogMeal Kiosk: Dishes / Menu Recognition, Payment, Nutritional Info



RECOGNITION OF VARIOUS DISHES
Recognize the different dishes, food group and products on the tray.



SEVERAL PAYMENTS AVAILABLE
Providing several checkout payments connected to client systems. NFC, Employee Card, Credit Card, QR Code, Face Recognition



*** NUTRITIONAL INFORMATION**
Nutritional information available, micro & macro nutrients (up to 37 indicators) of the image, previously uploaded to the system.

*** NO LIMITATION TO ADD, COMPOSE & COMBINE ANY KIND OF FOOD, BEVERAGES, RAW FOOD, MULTIPLE DISHES ON ONE OR SEVERAL PLATES. NO RESTRICTIONS TO LEARN & RECOGNISE FROM ANY DISHES IN THE WORLD WITH THEIR OWN LOOK**

* see more details at the appendix specific page

LogMeal Kiosk Anonymize (gray-out) confidential data in pictures (faces & text)

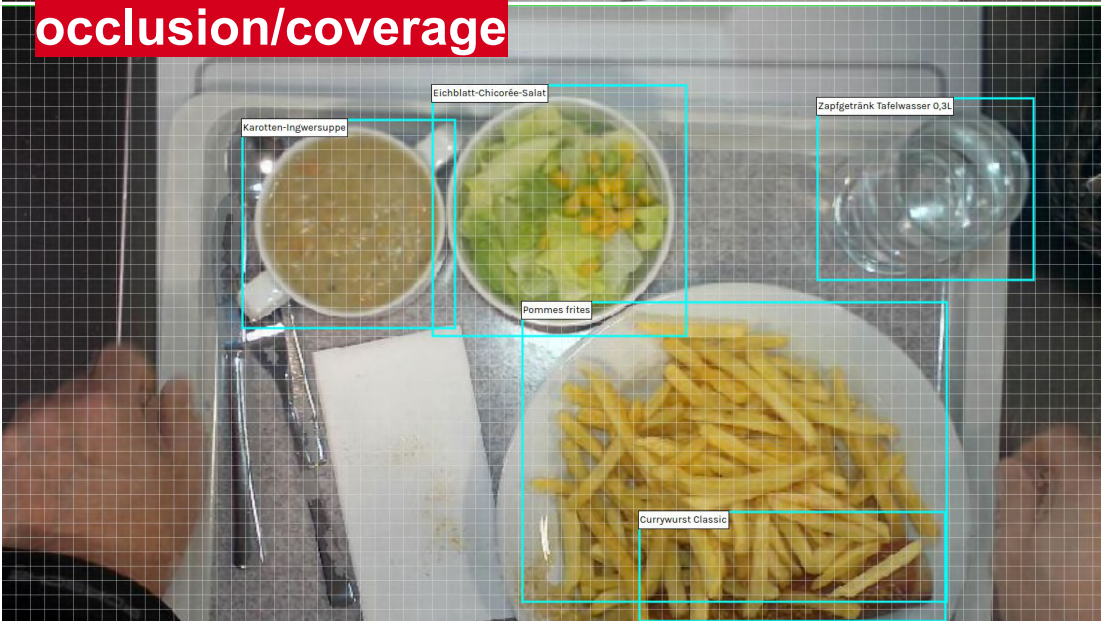
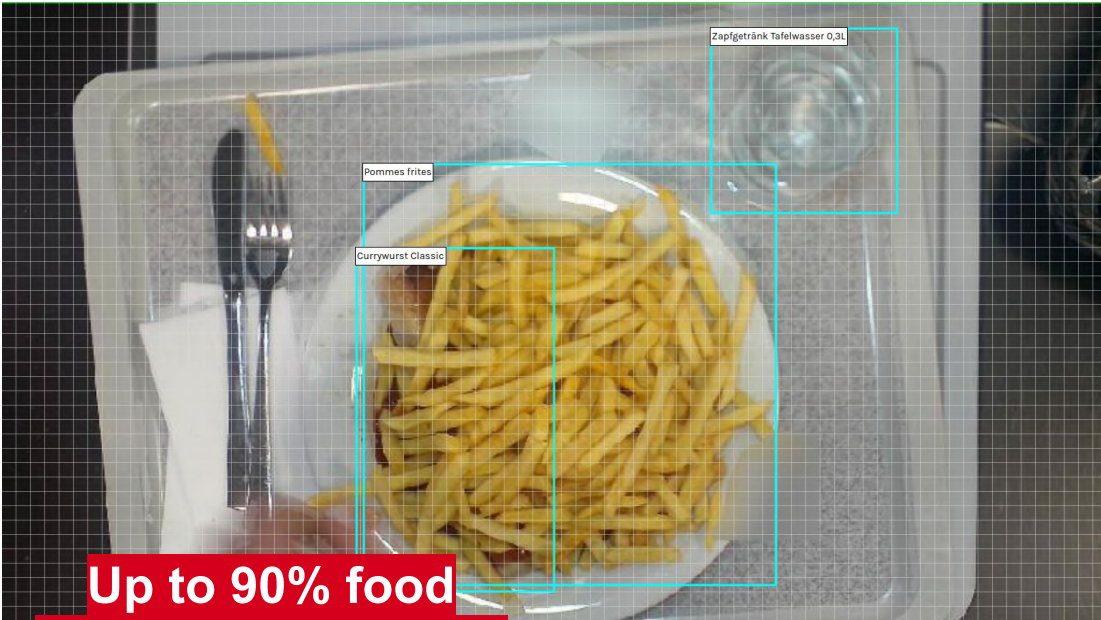


PRESERVE GDPR - HIPAA - PHI & AVOID DISPLAYING CONFIDENTIAL AND COMPROMISING INFORMATION

LogMeal Kiosk SELF-SERVICE RESTAURANTS/CANTEENS FOOD SAMPLES



LogMeal Kiosk SELF-SERVICE RESTAURANTS/CANTEENS FOOD SAMPLES



Up to 90% food occlusion/coverage

LogMeal Kiosk HEALTH & OPERATIONS IMPROVEMENTS

It has never been easier and more accurate to manage and obtain information from the entire process chain of a hospital's food and nutrition chain.

Initial image:

- ✓ **Automatic verification “double check”** that the meal served is the one planned by the nutrition professional.
- ✓ **Alerts (visual and sound) if there is a human mistake** in any food/dish or quantity
- ✓ **Automatic upload** of the meal served to the **patient profile**.

Second image:

- ✓ Patient's **leftovers**
- ✓ **Actual intake** of the patient and automatic upload to patient profile.
- ✓ Identification of **nutritional deficiencies** of the patient

LogMeal Kiosk FOOD WASTE TRACKING SOLUTION FOR RESTAURANTS & KITCHENS



Food waste management software, providing solutions for every kitchen.

From small kitchens, dark-kitchens, cafeterias, hotels, LogMeal will help your team record food waste seamlessly.

**In kitchen reporting
Analytics for Enterprise
Seamless integration**

Make data-driven decisions with food waste tracking analytics
Discover actionable insights designed to drive change at scale across your kitchens. The LogMeal dashboard and our food waste tracking software, underpin all of our solutions.

LogMeal Kiosk FOOD PLATING FOR HOSPITALS



At the end of the plating line a photograph is taken of the tray before placing on the tray trolley.

When tray returns to the kitchen, before clearing the tray, it is deposited back into the LogMeal Kiosk.

LogMeal Kiosk FOOD ATHLETES MANAGEMENT FOR SPORTS CLUB



The athletes fill their tray and drop it into the Kiosk, a photograph is taken of the tray before eating.

When finished, before being deposited back, they take a second picture with the LogMeal Kiosk to recognize the leftover and calculate the Actual Intake.

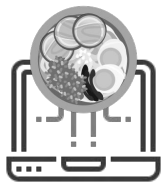
LogMeal Kiosk FOOD RECOGNITION SPEED ANALYSIS

RECOGNITION ACCURACY * WITH ONLY 3 IMAGES → 87,8% - WITH +50 IMAGES → 98.67% .



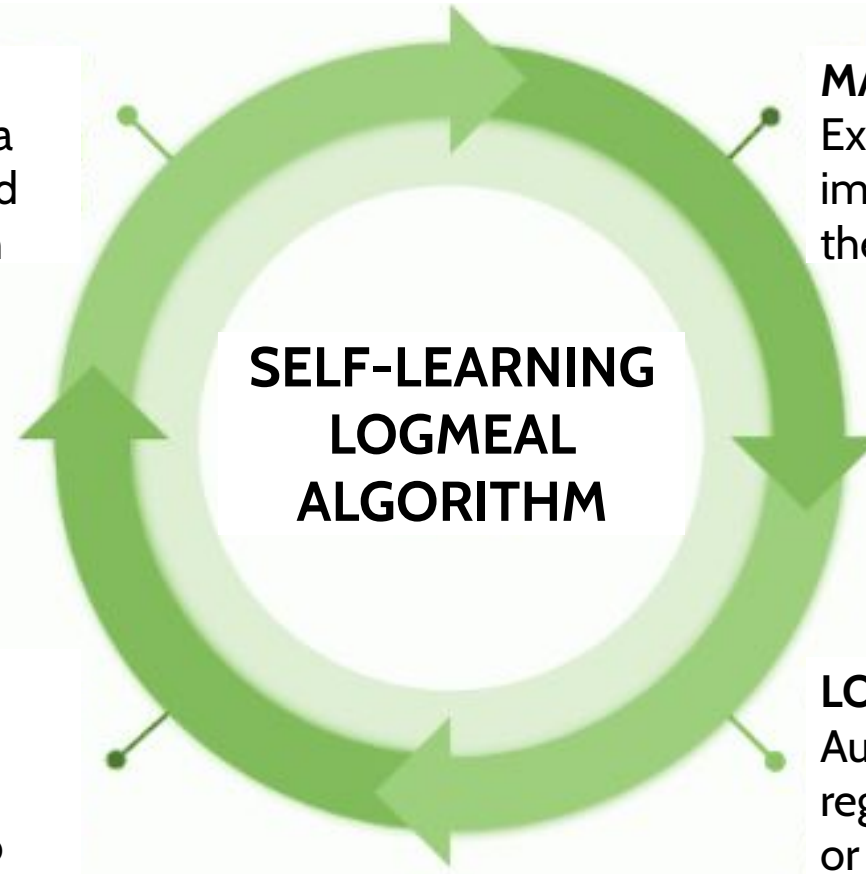
SELF-CHECKOUT

In the case of a new dish or a not automatically recognized dish or product, the user can inform it on the screen.



RE-TRAINING OF SYSTEM

New images of dishes or menus are incorporated into LOGMEAL to retrain the system.



MANUAL CORRECTION

Experts analyse and validate new images to constantly increase their reliability range.



LOG IN DAILY MENU

Automatic data entry for registering and changing menus or dishes from the restaurant / company's own system.



LogMeal Kiosk FOOD RECOGNITION SPEED ANALYSIS

Assuming a client might require a minimum of 10 seconds and a maximum of 15 seconds to complete a purchase, we could say that 1 Kiosk could serve between 4 to 6 clients per minute or 240 to 360 per hour. This means that if we put 2 Kiosks simultaneously, they could serve between 8 to 12 clients per minute or 480 clients per hour or 720 per hour.

**TOTAL SYSTEM FOOD DETECTION
(Take picture + Detect & Recognise food)**

4.4 seconds

USER PAYMENT INTERACTION

6.3 seconds

TOTAL PROCESS 1 CLIENT

10.7 - 15 seconds

TOTAL CLIENTS (from 1 to 8 devices)

from 240 to 2880 clients per hour



LogMeal PLATFORM for professionals

FOLLOW-UP & MANAGEMENT:

- ✓ GROUPS
- ✓ END-USERS (PATIENTS, CLIENTS, ATHLETES, etc)
- ✓ FOOD INTAKE LOGS
- ✓ ASSIGN INTAKES
- ✓ SET BODY MEASUREMENTS
- ✓ REPORTS (DAILY, WEEKLY, FOOD GROUPS)
- ✓ COMPANY SPECIFIC RECIPES
- ✓ ACTUAL INTAKE AND FOOD WASTE

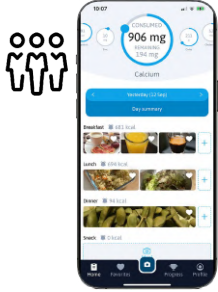
SET GOALS:

- ✓ MONITOR DIET
- ✓ UP TO 37 NUTRITIONAL INDICATORS INCLUDING MICRO & MACRO NUTRIENTS (MANUAL OR AUTOCOMPUTE)
- ✓ COMPARE
- ✓ ALERTS & WARNINGS
- ✓ CROSS-REFERENCE WITH HISTORY



LogMeal PLATFORM: for PROFESSIONALS

APP



PLATFORM



All Clients/Patients | All | ✓ Accomplished | ✗ With Difficulties | ? No information

Client/Patient	Mon	Tue	Wed	Thu	Fri	Sat	Sun
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?
user-id Johnson Johnson@gmail.com	✓	✗	✗	✓	?	✗	?

EN Language | Feedback | Copyright © 2023 All Rights Reserved LogMeal Platform | Terms of use | Privacy policy

OBJECTIVES, GOALS, ALERTS

Monitor individual or groups.

DIGITAL REPORTS

Standardized, Real Time, self-calculated.



For healthcare professionals:
Nutritionists, Dietitians,
Endocrinologists, Clinicians.

FOLLOW-UP:

- ✓ GROUPS
- ✓ PATIENTS
- ✓ USERS

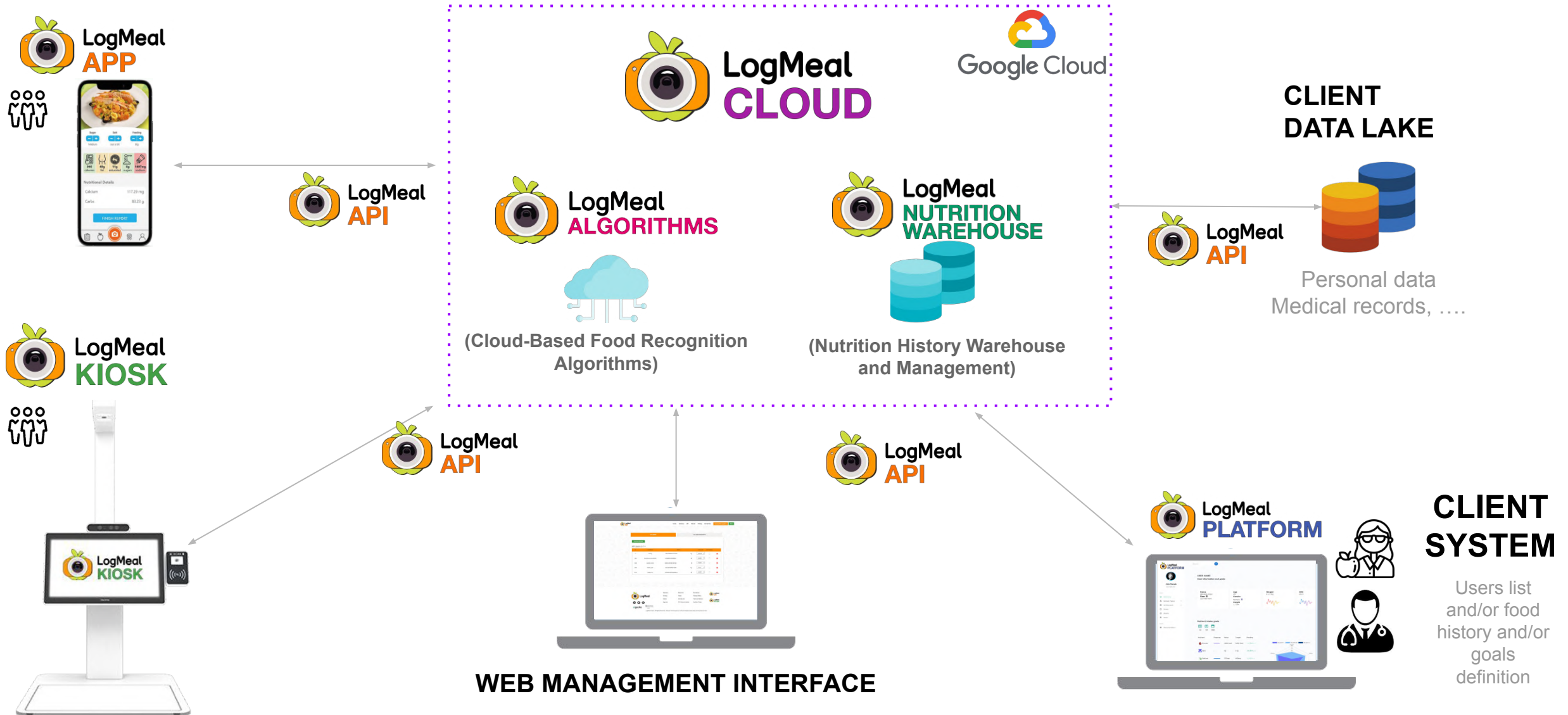
SET GOALS:

- ✓ MONITOR DIET
- ✓ MICRO AND MACRONUTRIENTS
- ✓ ALERTS & WARNINGS
- ✓ CROSS-REFERENCE WITH HISTORY

VISUALIZE:

- ✓ END-USERS INTAKES (food log history)
- ✓ ACTUAL INTAKE AND FOOD WASTE

FULLY SCALABLE. LOGMEAL API



MANAGING TEAM



**PETIA
RADEVA**

PhD CVC-UB
R&D Advisor
Co-Founder



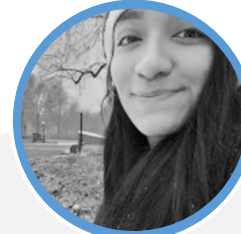
**ERIC
VERDAGUER**

MBA
CEO
Co-Founder



**MARC
BOLAÑOS**

PhD in DL & CV
CTO
Co-Founder



**FERNANDA
PEREZ**

Machine Learning
Engineer



PANALSOFT

Software Engineer
APP company

ADVISORY BOARD



**CARME
VIDAL**

Full Professor UB
NUTRITION



**ASCENSIÓN
MARCOS**

Research CSIC
NUTRITION



**CHEMA
COBO**

PhD Pharmacy
NUTRITION



JORDI SERRANO

Medicine-Surgery
GLOBAL HEALTH



**ALEJANDRO
NAVARRO**

MBA & mentor
GROWTH

ABOUT US.



Experts in food recognition

Food API detects over **1300 different dishes** using the biggest food image dataset in the world.

+25 international papers about food recognition.



Years of experience in computer vision

+30 years of experience in computer vision both on the industrial and on the academic sectors.

Developing **Deep Learning algorithms** since **2012**

IP Registered - <http://hdl.handle.net/2445/116266>



Successful stories

Our solutions have been applied on several **EU projects and contexts**.

Tracking for the **elderly**; to medical solutions like nutrition estimation for **diabetes** or **renal disease patients**; to **autonomous checkout** devices for **self-service restaurants**.



UNIVERSITAT DE
BARCELONA

Spin-off

INTERNATIONAL PRIZES



Personalised Nutrition for All!
EIT Food Foodvalley Food Innovation Hub Europe Challenge 2022 🏆 WINNER



Healthy Living Prize CARGILL
Singapore Week Innovation & Technology 2021 🏆 WINNER



Food Recognition & Nutrition
ELECTROLUX Challenge 2022 🏆 WINNER



Hub Health & Science
BNEW Startup Innovation 2021 Finalist



eAWARDS EVERIS
Health & Tech 2021 Semi-finalist



PRO SportsTech Congress
Sport Startup Competition 2022 Finalist



Andorra Sport Startups Challenge
2022 Special Additional Mention 🏆 Winner



Sport Tomorrow Congress
ALLIANZ Startup Challenge 2021 Finalist



Entrepreneurship World Cup
Spain Startups 2021 Finalist



Catalan Pitch Competition
TECH SPIRIT BARCELONA 2021 🏆 3rd Position



WSA EUROPEAN YOUNG INNOVATORS 2022
SPANISH 2022 🏆 WINNER



TOP 100 Startup
Slingshot Singapur 2021



Food4Future Competition
Startup Competition 2024 Finalist



Smart Kitchen Summit
Startup Showcase 2021 Finalist



UK International Trade
Stories 4 Impact 2021 Semi-finalist

LogMeal & ETHICS ASSESSMENTS

- **DATASETS**

Food-101, UECFOOD-256, MAFood-121, AICrowd Food Segmentation Dataset, LogMeal food segmentation dataset, Nutrition5K, Home-made Logmeal dataset. We have combined all the aforementioned dataset in order to train, and evaluate the algorithms developed in LogMeal. These include all out models for FOOD IMAGES RECOGNITION and FOOD VOLUME ESTIMATION.

- **DATA PROCESSING**

We have pre-processed all our datasets in order to train and design the algorithms that we use in all our products. In order to validate our algorithms we have also used state of the art metrics and validation procedures to make sure their output quality have high performance.

- **IMPACT ASSESSMENT**

Impacted stakeholders: Patients, Athletes, Nutrition experts, Fitness, Wellness and Health Apps, Apps devoted to diabetes, obesity, cancer, cardiovascular diseases, Hospitals, Schools, Canteens, Self-Service Restaurants, Cafeterias.

Impact on health safety and fundamental rights: Our products are oriented to **make an impact on improving** people's health through modifying their nutritional habits as well as reducing food waste.

Our societal and economic impacts can be associated to the **goals SDG2, SDG3, SDG9, SDG12, SDG17.**

LogMeal & ETHICS ASSESSMENTS

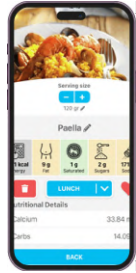
- **RISKS MANAGEMENT**

Food recognition algorithms achieving, Number of dishes trained, Food segmentation performance, Food volume estimation performance, API allowance and data security, patent technology, convert lost potential customers into customers, and other risks has been analysed and managed to avoid negative impact and reducing risks.

- **HUMAN OVERSIGHT**

How the product affects decision making and enables human control is based into; Human oversight measures Maintenance and care measures & Quality Assurance system for components & architecture for (API, APP, Kiosk, Web, Deep Learning Servers, Platform) at all environments running independently (Production, Staging, Local Dev.) and different roles, User measures for oversight (security, storage, encryption, tokens, expiration, read, write, URL TSL/SSL, Authentication, Cryptographic processes ensure that all system remains safe (types and levels), and Ethics for preserving GDPR.

VIDEOS & DEMOS.



APP



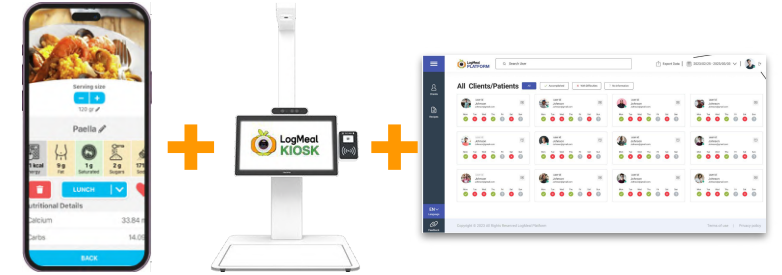
<https://youtu.be/z-3iQ7LhvX0>



KIOSK



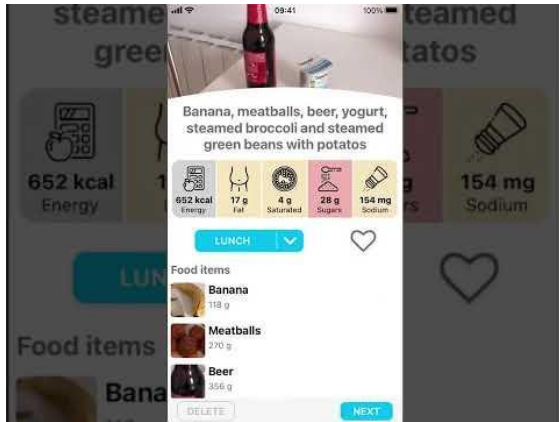
<https://youtu.be/6t2ZU11DuDQ>



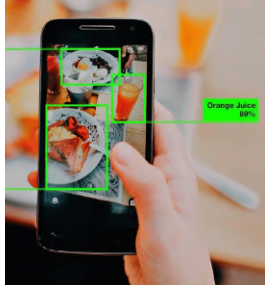
APP + KIOSK + PLATFORM



<https://youtu.be/J-bLjFuZUJ0>



OUR SOLUTIONS



API

API that allows food recognition (prepared meals and food) using Artificial Intelligence algorithms with just a photo.

Recognition and Extraction of food information, food groups, ingredients/recipes and micro and macro nutritional information.



KIOSK

Touchless Checkout System:
Dish and food recognition Multiple Payment System, User identification (NFC, QR, Facial recognition, company id).

Detailed nutritional information (micro and macro)
Management menus and business data



APP

Recognize all dishes, beverages, raw food.
+900 international dishes.
Food Recognition
Nutritional Information
Real Intake
100% connected
White Label available
Custom Recipes



NUTRAEXPERT

AI + Customized intake monitoring and analysis algorithms for a healthy lifestyle

Includes LogMeal Platform & LogMeal API

The Best solution for Nutritionist & Dieticians
Freelancers with no tech resources

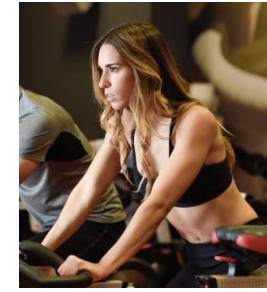


NUTRAHOSPITAL

Solution for tracking and monitoring patients in and out of the hospital.

Platform for doctors/nutritionists to control and monitor their patients' intakes.

Includes LogMeal Kiosk, LogMeal Platform & LogMeal API



NUTRASPORT

On-site and off-site monitoring platform for athletes and nutritionists.

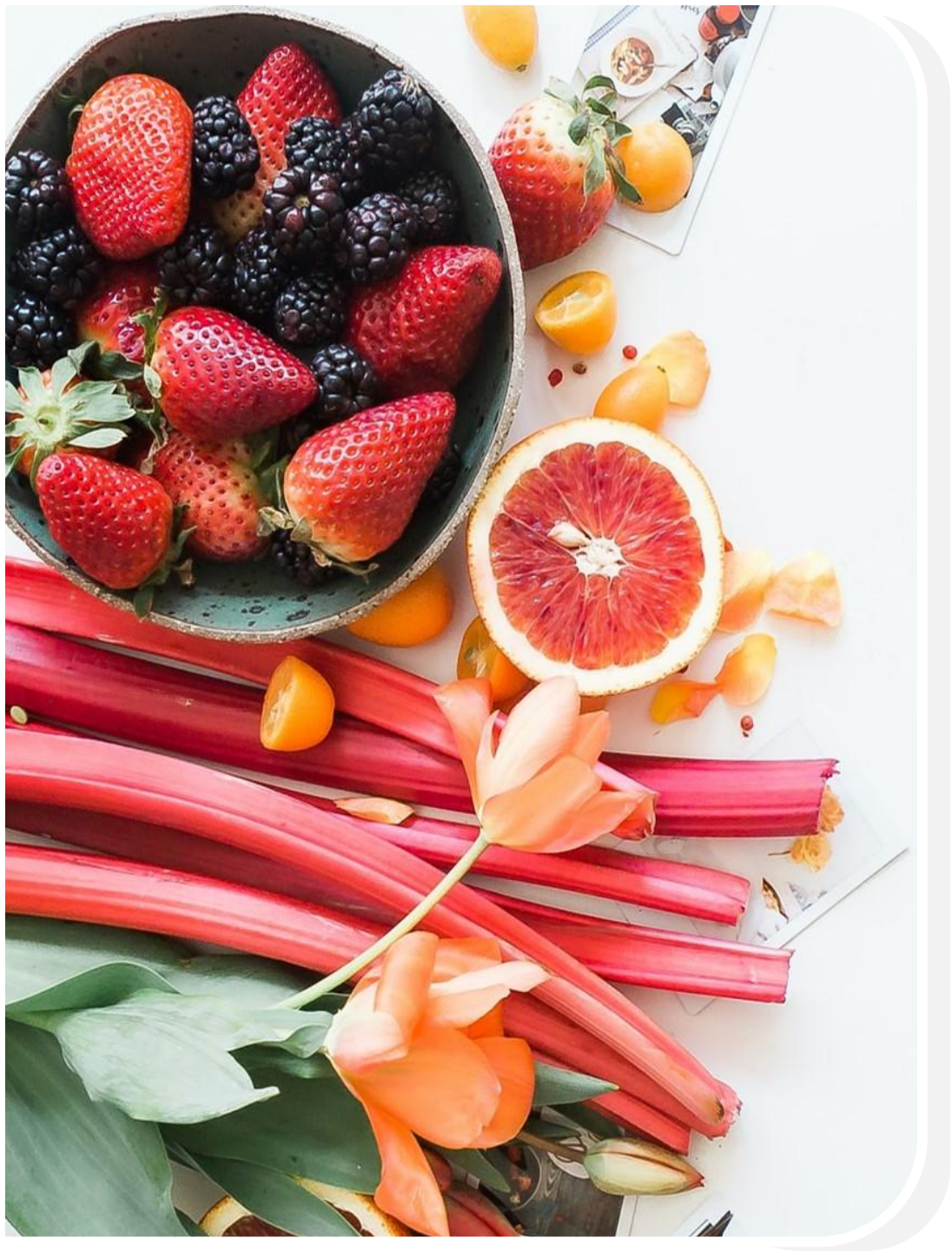
AI + Customized algorithms to control and monitor intakes.

Includes LogMeal Kiosk, LogMeal Platform & LogMeal API



PLATFORM

Professionals Monitoring, Management, set goals of users intakes.
Follow-up: groups, patients.
set goals: monitor diet, micro¯o nutrients, compare, alerts
cross-reference history
Includes LogMeal Kiosk, LogMeal APP & LogMeal API



LogMeal

Instant Food Analysis

EAT BETTER. LIVE BETTER.

www.logmeal.com



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Co-Founder & CEO

