



Technology Shaping the Broadband Future

Mobile Personal Health Application for Empowering Diabetic Patients:

The Case within EMPOWER Project

Dr Ilias Lamprinos

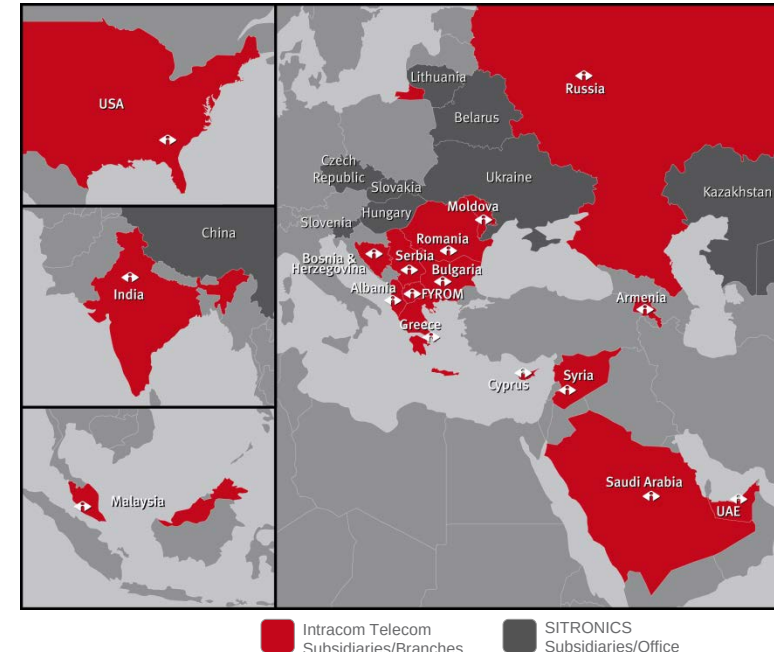
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sitronics
telecom solutions ■

Short Company Profile



- ▶ **A Recognized International Telecommunication Systems Vendor operating in EEMEA, CIS and APAC**
- ▶ **35 years** experience in the telecoms market
- ▶ **Strong regional presence throughout EMEA**
 - Operations in 16 countries
 - Exports to over 50 countries
- ▶ **Revenue 2011 (Group): €255 million**
- ▶ **Over 2,000 employees** in Greece and abroad
- ▶ Advanced **R&D** and **Production** facilities
- ▶ **Core Business Offerings:**
 - Wireless Network Systems
 - Telco Software
 - Services
- ▶ **Major Shareholders:** Intracom Holdings & SITRONICS



- ▶ **Technology Shaping the Broadband Future**



BROADBAND SYSTEMS	TELCO SOFTWARE	ICT SERVICES & SOLUTIONS
▶ Packet MW Radio Platform (OmniBAS™) ▶ Point-to-Multipoint Wireless Platform (WiBAS™) ▶ Wireless Broadband Access, WiMAX (OmniMAX™) ▶ Hybrid (ETH/TDM) MW Radio Systems (INTRALINK™) ▶ E-Band Packet Radio (UltraLink™) ▶ Multiservice Access Node, DSLAM (iBAS™, FASTmux™) ▶ Universal Service Access Platform (IAS-W™, OmniRural™) ▶ Monitoring & Network Management Systems (uni MS™)	▶ IPTV & Digital Content Service platform (fs cdn™) ▶ Next Generation Intelligent Network (NGIN) & Charging applications (NGINius-Apps™ & NGINius-Charging™) ▶ Value-Added Services platform (ServiceWeaver™) ▶ Service Activation & Provisioning system (ActionStreamer™) ▶ Policy Management & Enforcement solution (ActionRuler™) ▶ Contact Center solutions ▶ Service & Network Assurance solutions ▶ Big Data Analytics & Complex Event Processing platform (BigStreamer™)	▶ Multi-Service Core Networks ▶ Turnkey Broadband Access Networks ▶ Converged Backhauling ▶ Public & Private Cloud ▶ Security (Network & Enterprise) ▶ Data Center & IT Infrastructure Optimization ▶ Advanced ISP Services ▶ Converged Networking & UCC ▶ Network Rollout & Field Services ▶ Multi-Vendor Technical Support ▶ Operation Outsourcing & Managed Services

- ▶ Patient empowerment is seen as an essential aspect of patient-centric care and identified as a main element of change for improved quality and safety in healthcare. **Patient Empowerment engages patients to a greater extent in their healthcare process** so that disease management becomes an integrated part of their daily life

⇒ **What do patients need to cope better with their chronic diseases as part of their daily life?**



Key issues for Patient Empowerment

- ▶ Fostering self-management
- ▶ Access to relevant information
- ▶ Managing the own health data
- ▶ Fostering patient-physician relationship

(1) Foster self-management with adaptive and secure patient pathways

- | by including treatment goals and recommendations from their physicians
- | Adapted to the patients skills (maturity level), requirements and needs

(2) Support behaviour changes with personalised action plans

- | by including services for personalised, long-term self-management goals realised by short-term activities

(3) Collect patterns of daily living

- | Services for Observations of Daily Living (ODLs) about vital, physical and mental parameters and about physical and lifestyle activities based on openEHR archetypes

(4) Semantic interoperability with existing Personal Health Applications

- | by supporting semantic interoperability based on established standards such as HL7 IHE profiles, ISO/CEN13606 information models



Thursday 11 April 2013 14:00-15:30

Global eHealth Strategies (2)

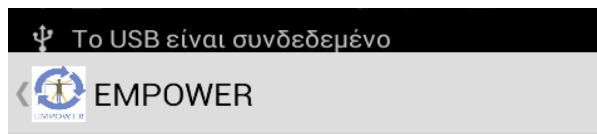
The EMPOWER Project - Facilitating Self-Management of Diabetes Patients by Intelligent, Knowledge-Based Pathways

Holger Schmuhl, Hans Demski, Ilias Lamprinos, Asuman Dogac, Manuela Ploessnig, Claudia Hildebrand
Helmholtz Zentrum Munchen, Institute for Biological and Medical Imaging, Laboratory for Medical Information
Systems, Neuherberg, Germany

Intracom Telecom, Telco Software Department, Greece

Software Research, Development and Consultation, Turkey

Salzburg Research Forschungsgesellschaft, Knowledge and Media Technologies, Austria



Vital Signs



Physical Exercise

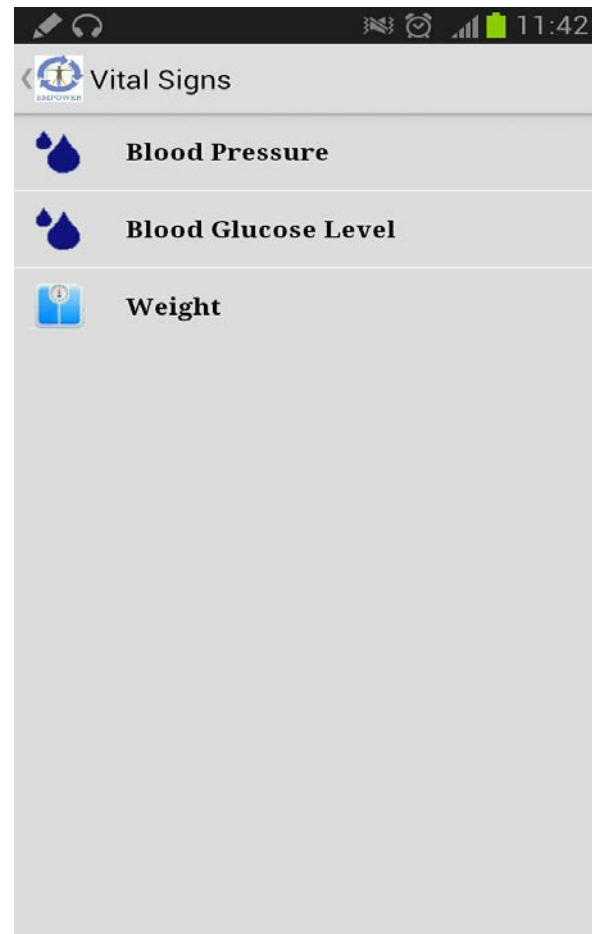
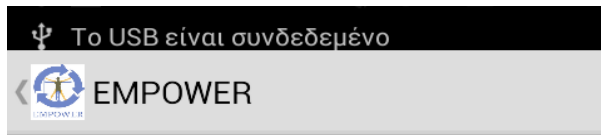


Sleep Diary



Nutrition

Vital signs collection



Vital signs collection: manual entry

Blood Pressure

Systolic (mm/Hg)	Diastolic (mm/Hg)	Pulse (bpm)
113	66	76

Set Date
Fri, 5 Apr 2013

Set Time
11:42 AM

Before breakfast

Insert

Insert from device

Vital Signs

WEIGHT (KG)

05 Apr 2013

80.0KG

- +

Set Time
13:9 PM

Before breakfast

Insert

Insert from device

Vital Signs

BLOOD GLUCOSE (MG/DL)

11 Mar 2013

132.0 MG/DL

- +

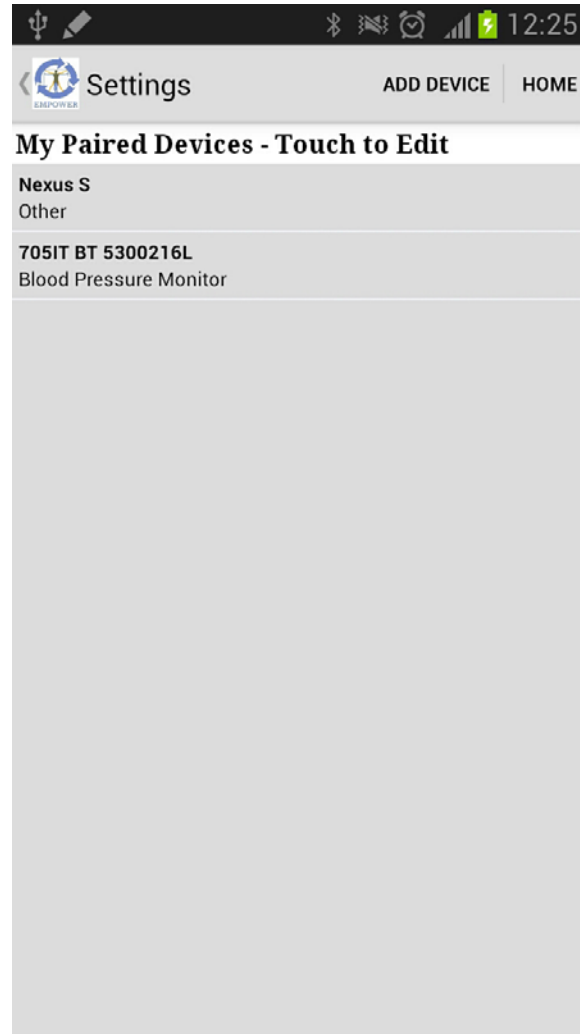
Set Time
13:35 PM

After lunch

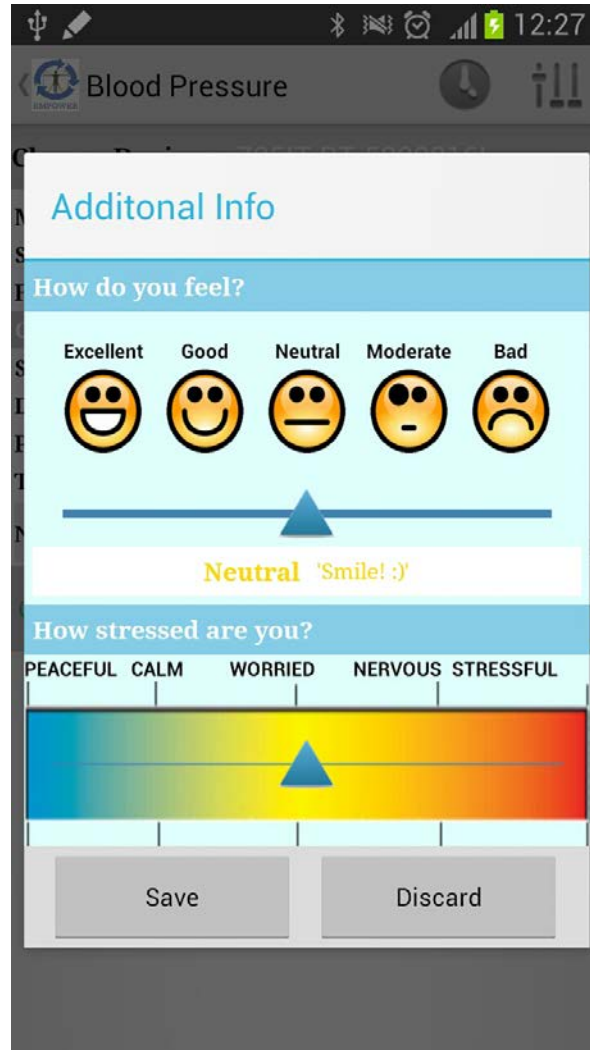
Insert

Insert from device

Vital signs collection: automatic entry



Vital signs collection: additional Information



Blood Pressure

Additional Info

How do you feel?

Excellent Good Neutral Moderate Bad

Neutral 'Smile! :)'

How stressed are you?

PEACEFUL CALM WORRIED NERVOUS STRESSFUL

Save Discard

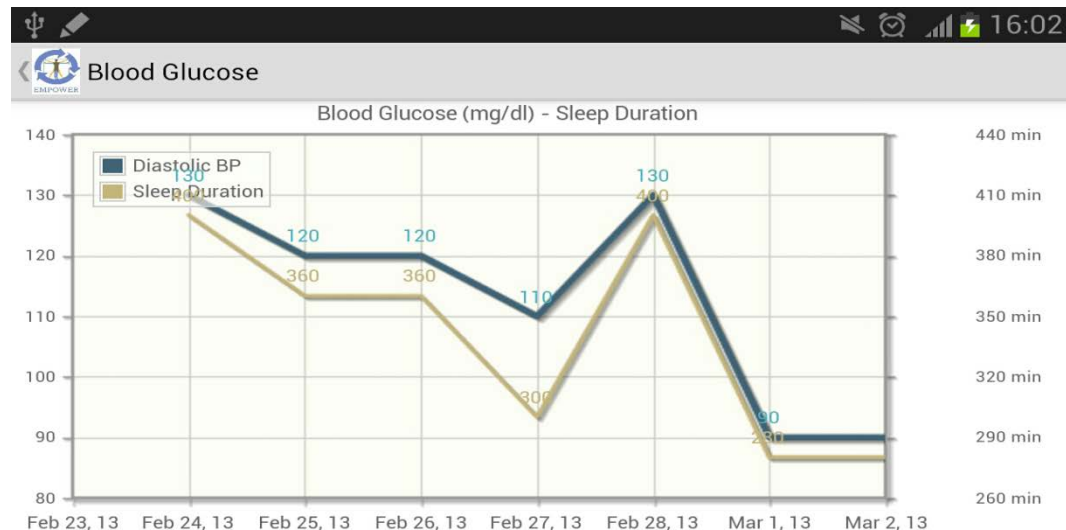
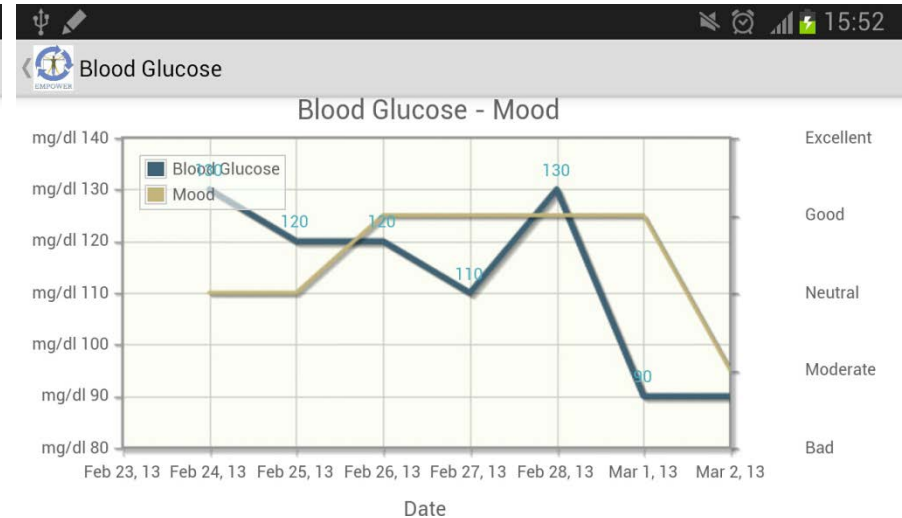
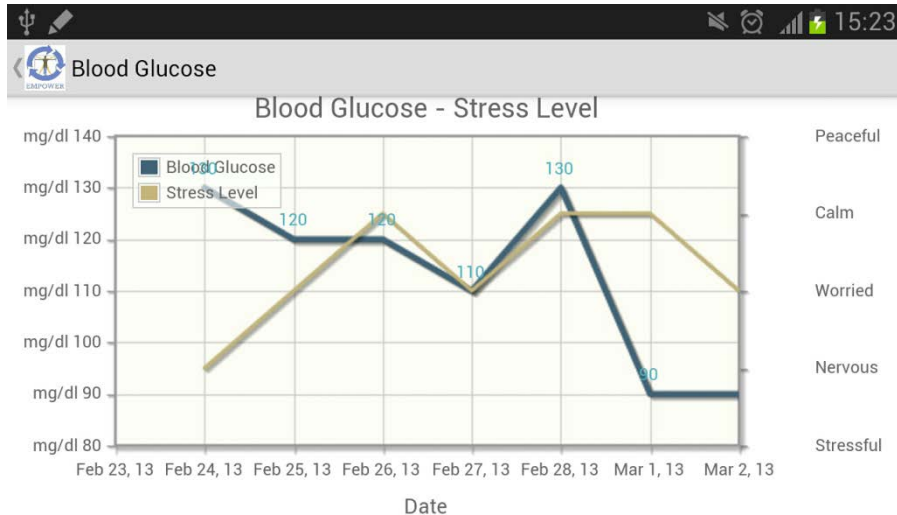
Vital signs collection: History (list view)

Blood Pressure			SORT BY	
BPM	12:25 PM, Tuesday, 25 Feb 2013 BEFORE BREAKFAST			
67 BPM	66 MM/HG 133 MM/HG			
	12:25 PM, Wednesday, 26 Feb 2013 BEFORE BREAKFAST			
77 BPM	66 MM/HG 113 MM/HG			
	12:25 PM, Thursday, 27 Feb 2013 BEFORE BREAKFAST			
77 BPM	66 MM/HG 113 MM/HG			
	12:25 PM, Friday, 28 Feb 2013 BEFORE BREAKFAST			
76 BPM	66 MM/HG 123 MM/HG			
	12:25 PM, Saturday, 1 Feb 2013 BEFORE BREAKFAST			
76 BPM	66 MM/HG 123 MM/HG			
	12:25 PM, Sunday, 2 Feb 2013 BEFORE BREAKFAST			
78 BPM	66 MM/HG 113 MM/HG			
	12:55 PM, Monday, 3 Mar 2013 AFTER LUNCH			

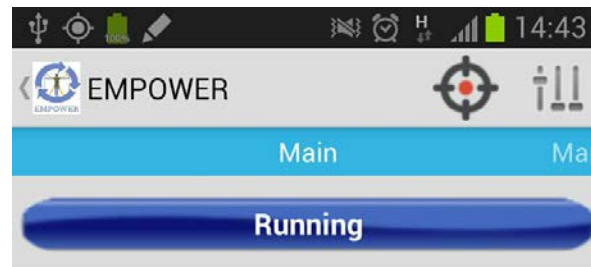
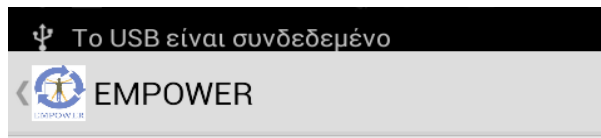
Weight			SORT BY	
80.0 KG	1.69 CM BMI: 28.01			
	12:32 PM, Wed, 2 Apr 2013 BEFORE BREAKFAST			
90.8 KG	1.69 CM BMI: 31.79			
	12:32 PM, Mon, 3 Mar 2013 BEFORE BREAKFAST			
80.0 KG	1.69 CM BMI: 28.01			
	21:09, Sat, 1 Mar 2013 BEFORE DINNER			
121.6 KG	1.69 CM BMI: 42.58			
	21:09, Sun, 2 Mar 2013 BEFORE DINNER			
85.6 KG	1.69 CM BMI: 29.97			
	21:09, Fri, 14 Mar 2013 BEFORE DINNER			
72.7 KG	1.69 CM BMI: 25.45			
	21:09, Tue, 18 Mar 2013 BEFORE LUNCH			
96.3 KG	1.69 CM BMI: 33.72			
	21:09, Sat, 22 Mar 2013			

Blood Glucose			SORT BY	
178.0 MG/DL				
	13:14 PM, Sat, 5 Apr 2013 BEFORE BREAKFAST			
184.0 MG/DL				
	13:35 PM, Wed, 5 Mar 2013 BEFORE BREAKFAST			
204.0 MG/DL				
	13:35 PM, Thu, 6 Mar 2013 AFTER LUNCH			
204.0 MG/DL				
	13:35 PM, Fri, 7 Mar 2013 AFTER LUNCH			
204.0 MG/DL				
	13:35 PM, Sat, 8 Mar 2013 AFTER LUNCH			
234.0 MG/DL				
	13:35 PM, Sun, 9 Mar 2013 AFTER LUNCH			
160.0 MG/DL				
	13:35 PM, Mon, 10 Mar 2013 AFTER LUNCH			
132.0 MG/DL				
	12:25 PM			

Vital signs collection: History (line charts)



Physical activity monitoring



Duration
00:00:00

Distance
0.0 km

Speed 0.0 kmh

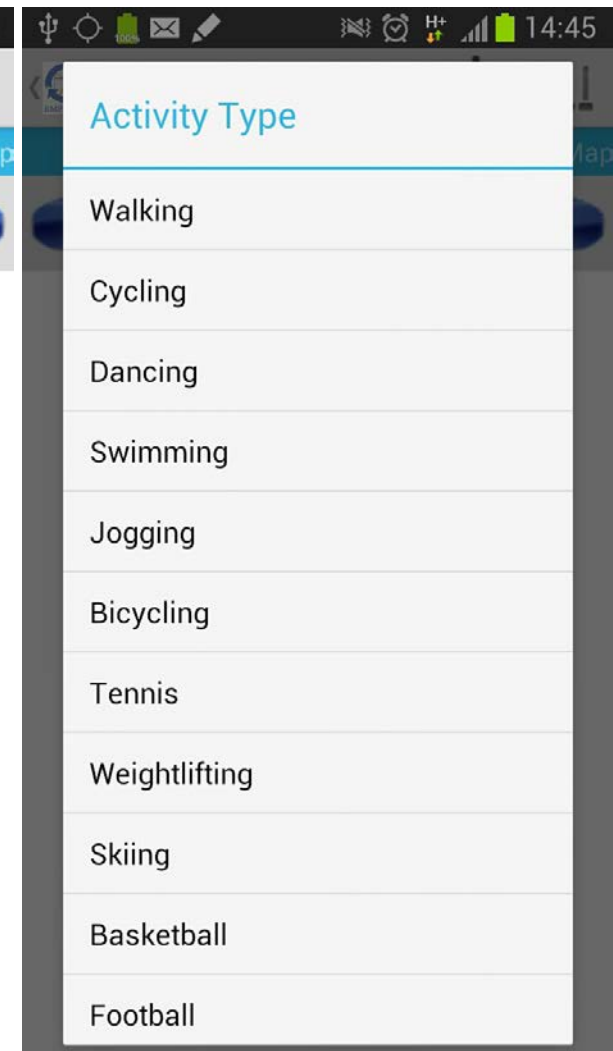
Avg. Pace 00:00

Elevation 0 m

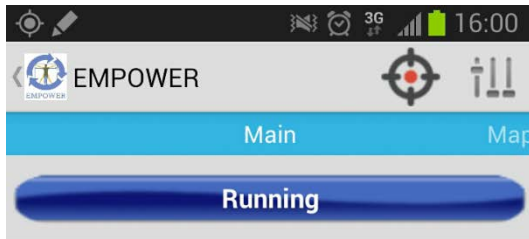
Calories 0

Start

Insert a workout manually

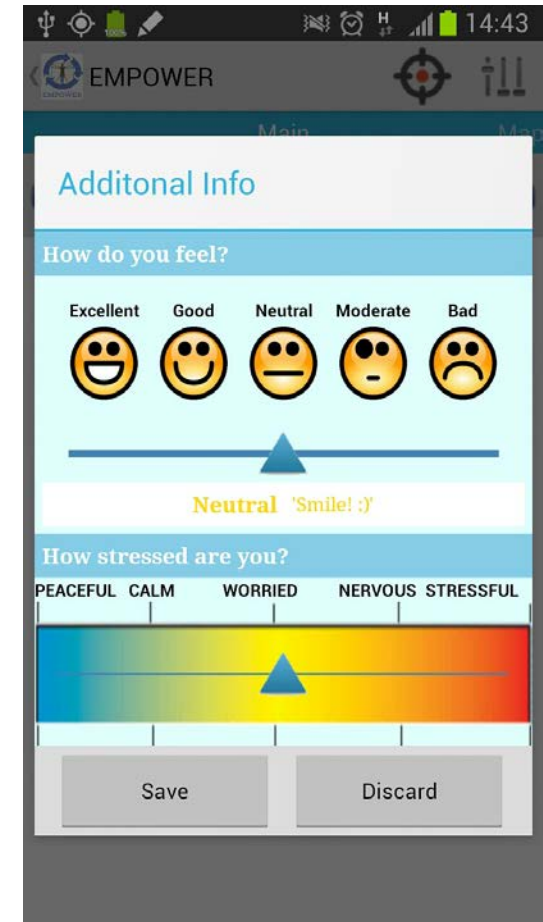
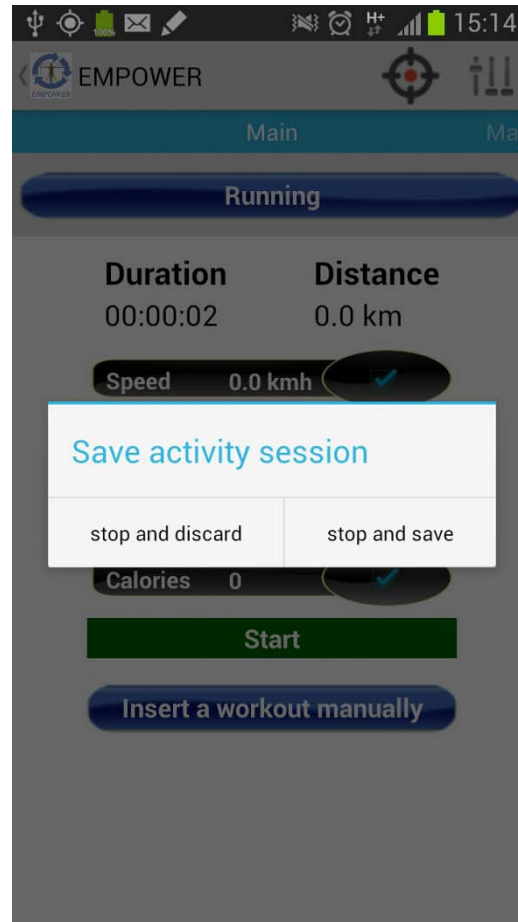


Physical activity: automatic monitoring

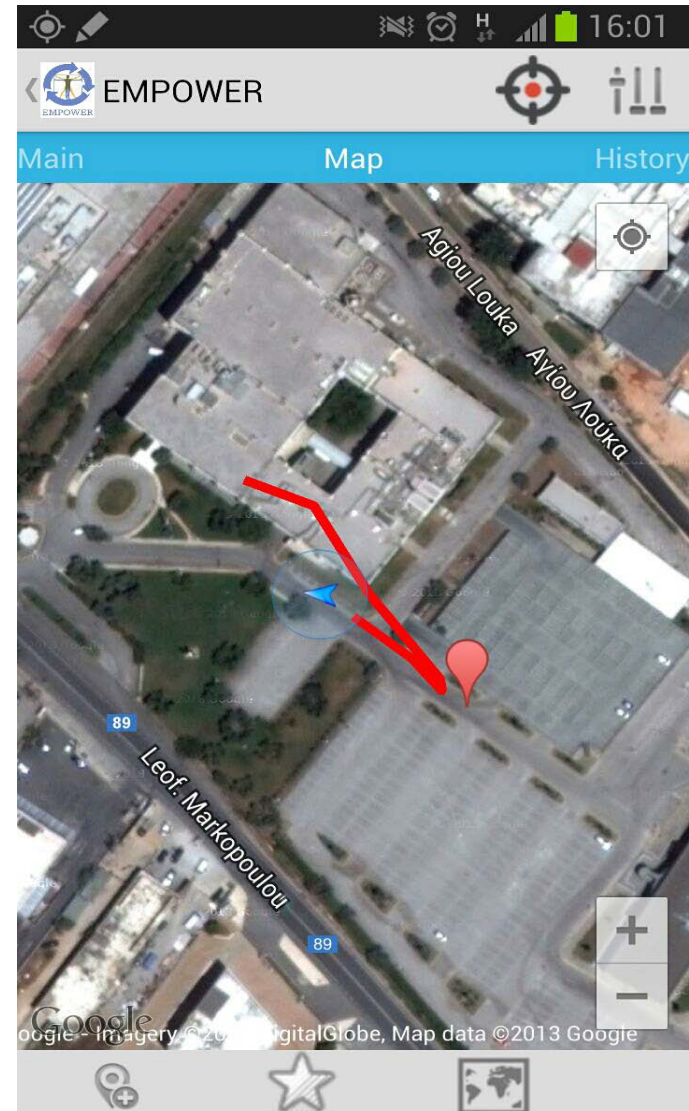
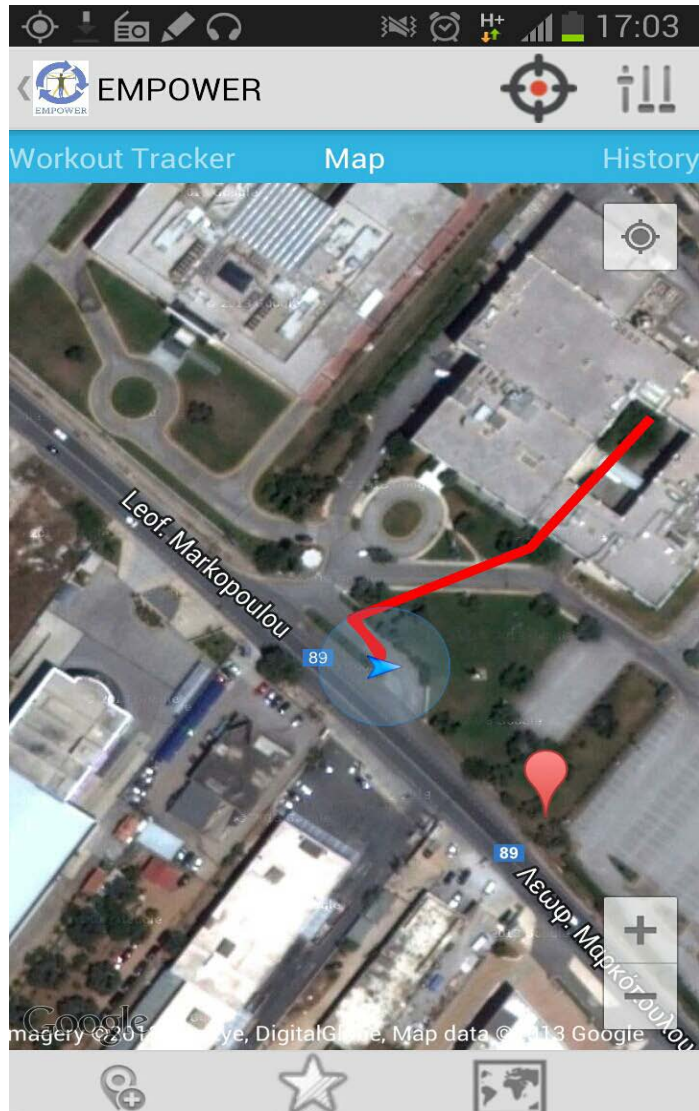


Duration 00:02:26
Distance 0.08 km

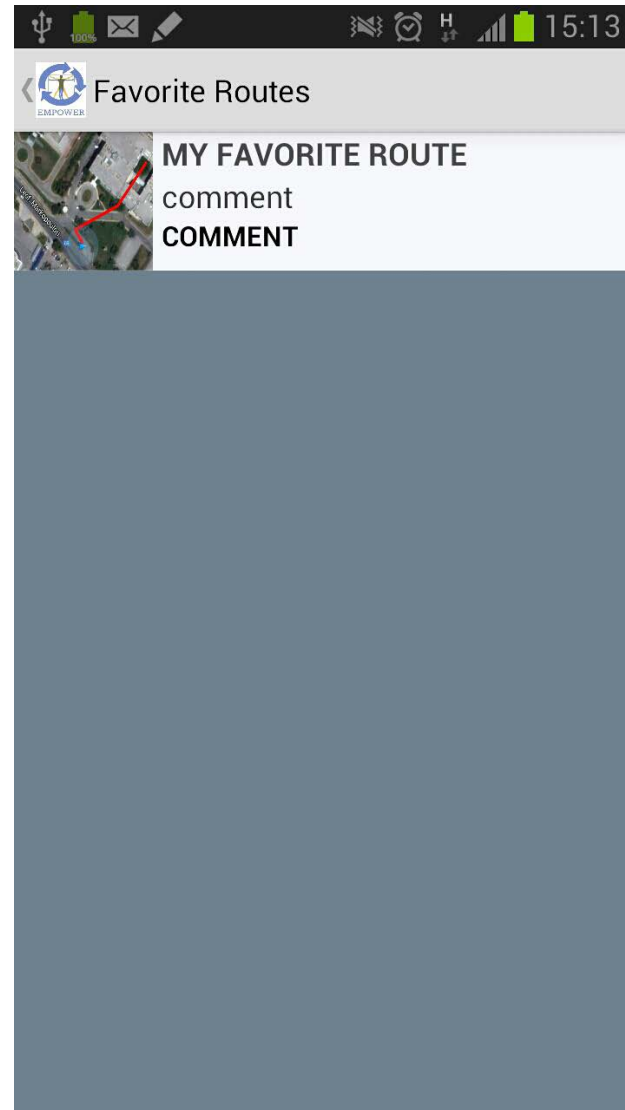
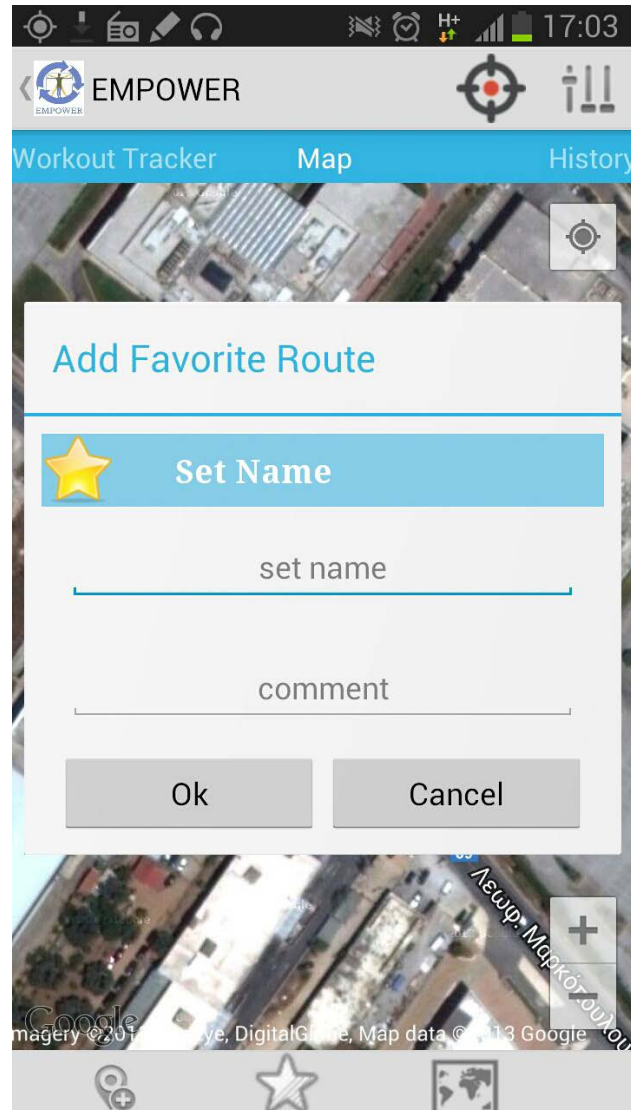
Your Goal: 2 km



Physical activity: route tracking on a map



Physical activity: favorite routes



Physical activity: manual entry of activities

New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

Insert Values

TYPE OF ACTIVITY
Jogging

DISTANCE
-

DURATION
-

SPEED
-

CALORIES
-

PACE
-

NUMBER OF SETS
-

Save Discard

New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

Distance

6.0 KM

UNIT km

Ok Cancel

New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

Speed

6.3 KPH

UNIT kph

Ok Cancel

New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

PACE
-

NUMBER OF SETS
-

Save Discard

New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

Duration

HOURS	MIN	SECS
200	0	7
0	45	8
1	2	9

Ok Cancel

New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

Calories

CALORIES

16

17

18

Ok Cancel

New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

PACE
-

NUMBER OF SETS
-

Save Discard

Physical activity: set goals and view past sessions

EMPOWER

Set a Workout Goal

DISTANCE
9 km

DURATION
-

CALORIES
-

DURATION AND DISTANCE
-

Cancel

EMPOWER

Map	History
10.4 KM	DURATION: 1:00:0 2-2-2013, 14:51 PM
8.1 KM	DURATION: 0:16:0 3-5-2013, 14:51 PM
8.1 KM	DURATION: 0:16:0 3-7-2013, 14:51 PM
8.1 KM	DURATION: 0:16:0 3-13-2013, 14:51 PM
8.1 KM	DURATION: 0:16:0 3-15-2013, 14:51 PM
12.6 KM	DURATION: 1:00:0 3-29-2013, 14:53 PM

Nutrition diary

Το USB είναι συνδεδεμένο

EMPOWER



Vital Signs



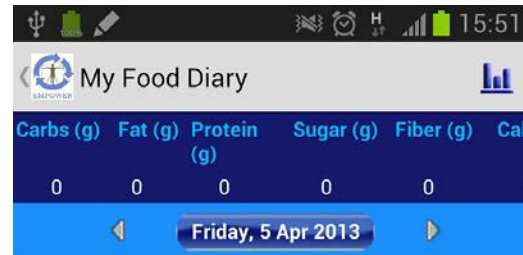
Physical Exercise



Sleep Diary



Nutrition

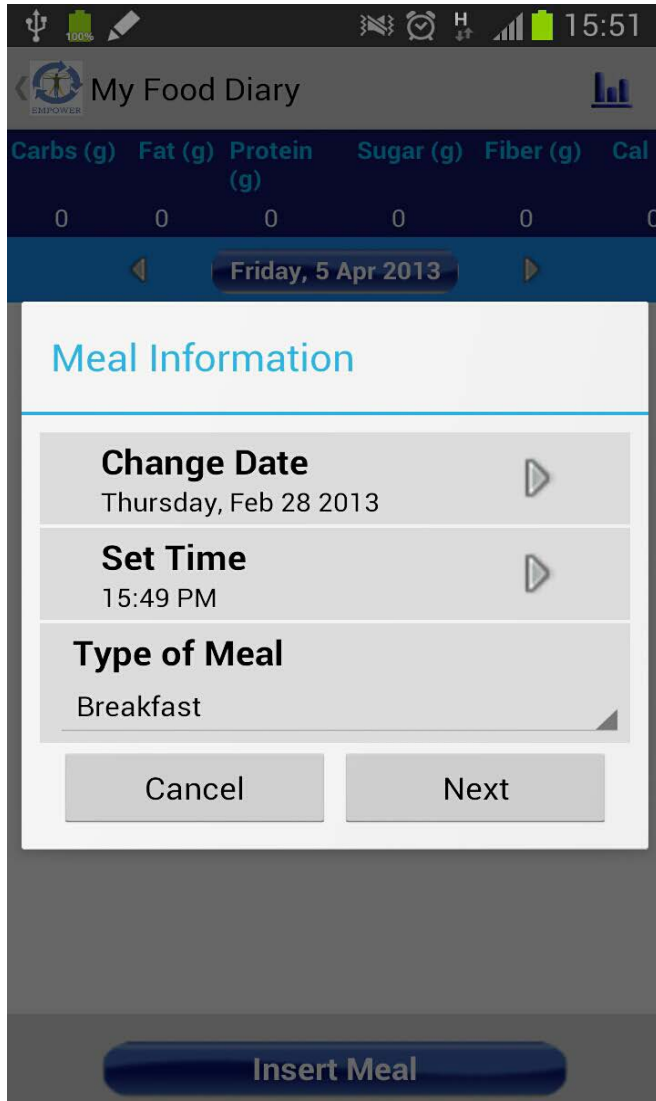


Carbs (g)	Fat (g)	Protein (g)	Sugar (g)	Fiber (g)	Cal
0	0	0	0	0	0

Friday, 5 Apr 2013

Insert Meal

Nutrition diary: edit and store a meal entry



My Food Diary

Carbs (g) Fat (g) Protein (g) Sugar (g) Fiber (g) Cal

0 0 0 0 0 0

Friday, 5 Apr 2013

Meal Information

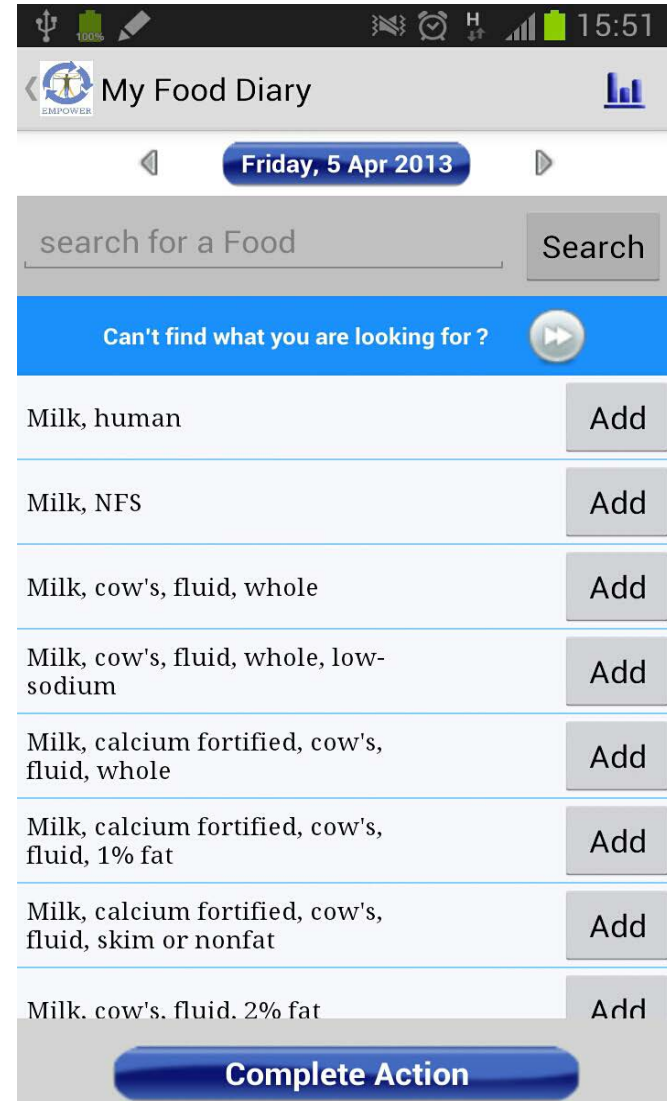
Change Date
Thursday, Feb 28 2013

Set Time
15:49 PM

Type of Meal
Breakfast

Cancel Next

Insert Meal



My Food Diary

Friday, 5 Apr 2013

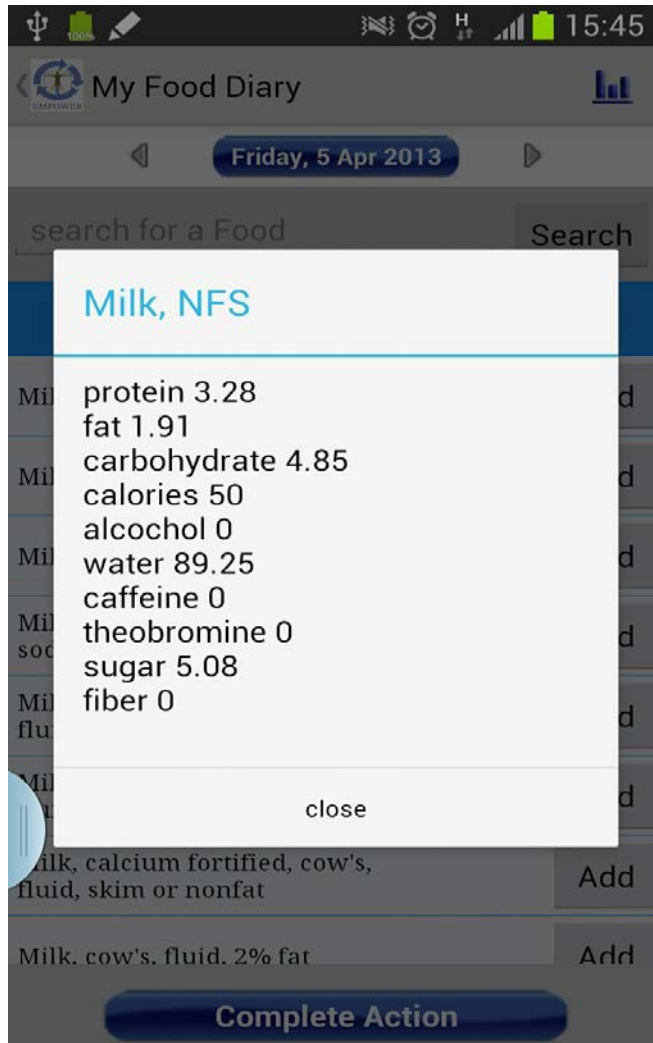
search for a Food Search

Can't find what you are looking for ?

Milk, human	Add
Milk, NFS	Add
Milk, cow's, fluid, whole	Add
Milk, cow's, fluid, whole, low-sodium	Add
Milk, calcium fortified, cow's, fluid, whole	Add
Milk, calcium fortified, cow's, fluid, 1% fat	Add
Milk, calcium fortified, cow's, fluid, skim or nonfat	Add
Milk, cow's, fluid, 2% fat	Add

Complete Action

Nutrition diary: overview of nutrition facts



My Food Diary

Friday, 5 Apr 2013

search for a Food Search

Milk, NFS

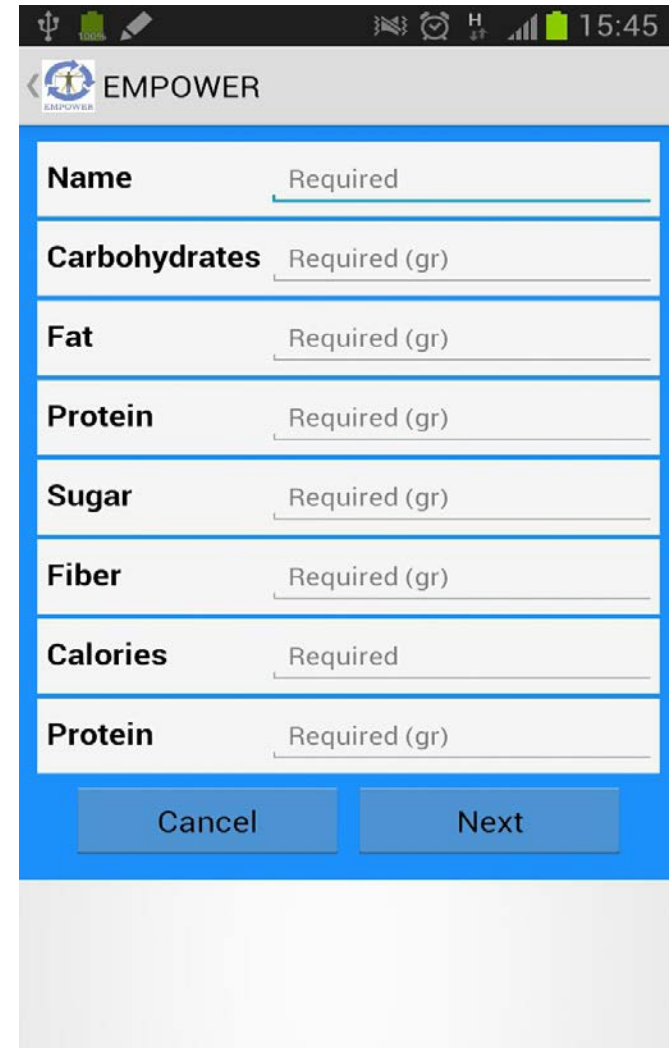
- protein 3.28
- fat 1.91
- carbohydrate 4.85
- calories 50
- alcohol 0
- water 89.25
- caffeine 0
- theobromine 0
- sugar 5.08
- fiber 0

close

Milk, calcium fortified, cow's, fluid, skim or nonfat Add

Milk, cow's, fluid, 2% fat Add

Complete Action

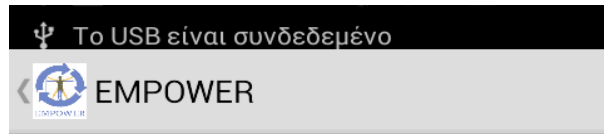


EMPOWER

Name	Required
Carbohydrates	Required (gr)
Fat	Required (gr)
Protein	Required (gr)
Sugar	Required (gr)
Fiber	Required (gr)
Calories	Required
Protein	Required (gr)

Cancel Next

Sleep diary



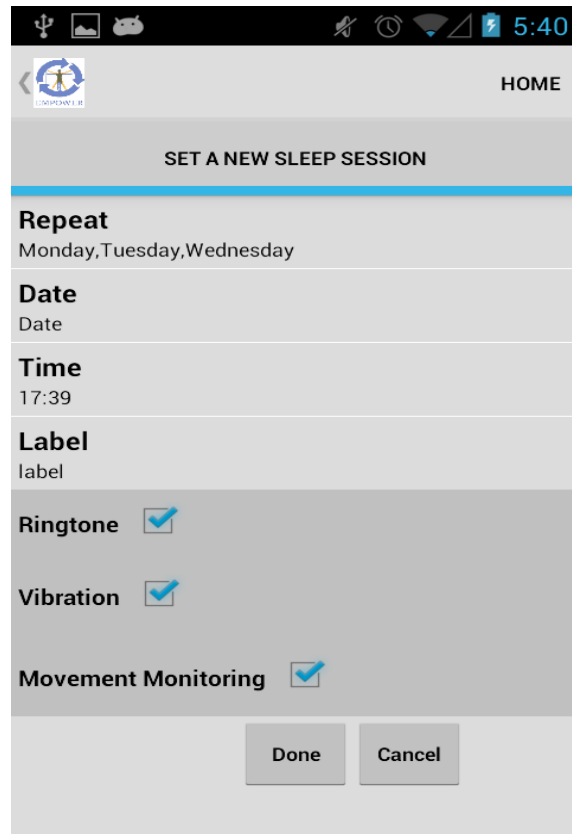
Vital Signs



Physical Exercise



Nutrition



HOME

SET A NEW SLEEP SESSION

Repeat
Monday, Tuesday, Wednesday

Date
Date

Time
17:39

Label
label

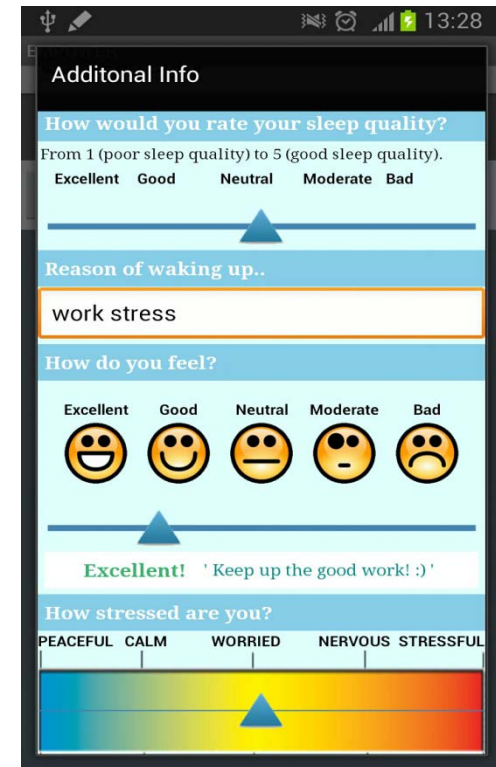
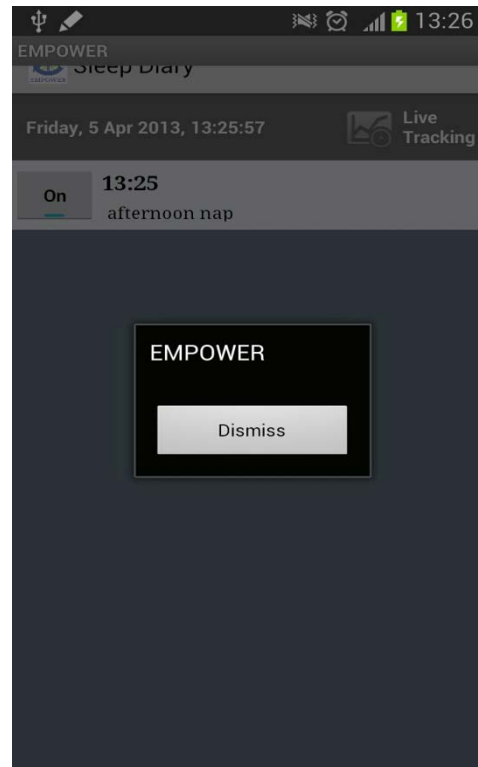
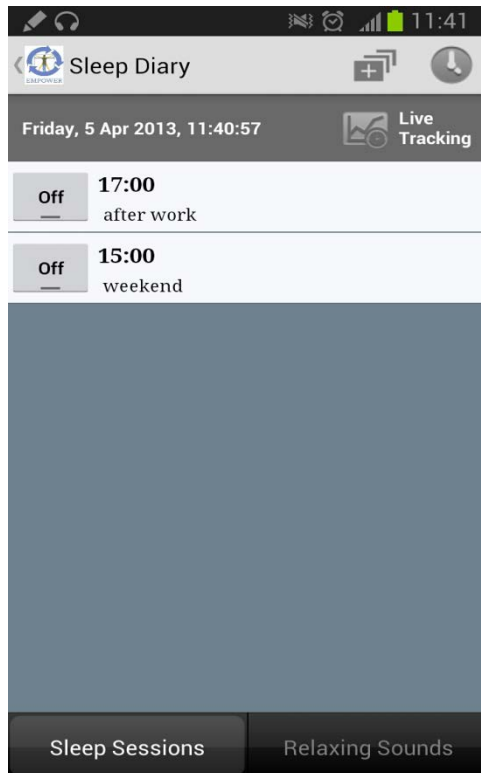
Ringtone ☒

Vibration ☒

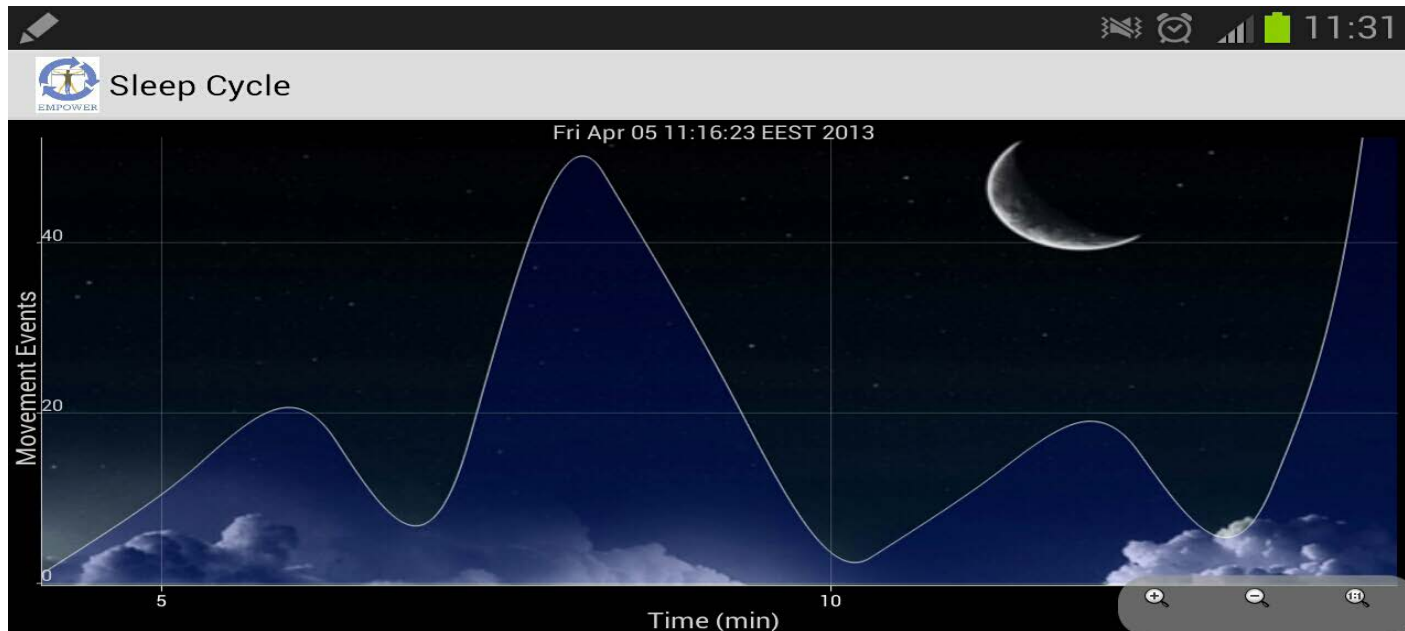
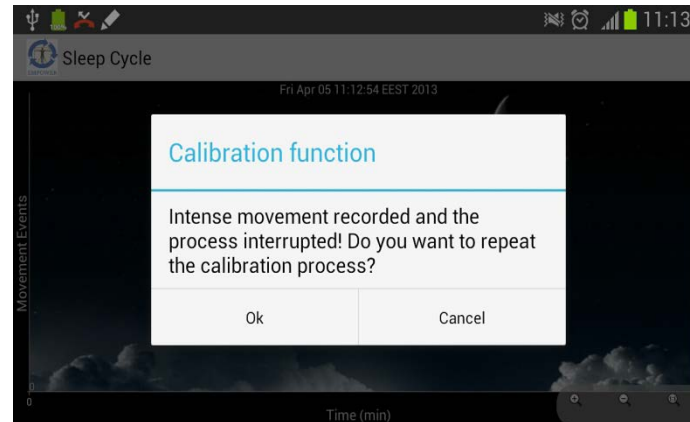
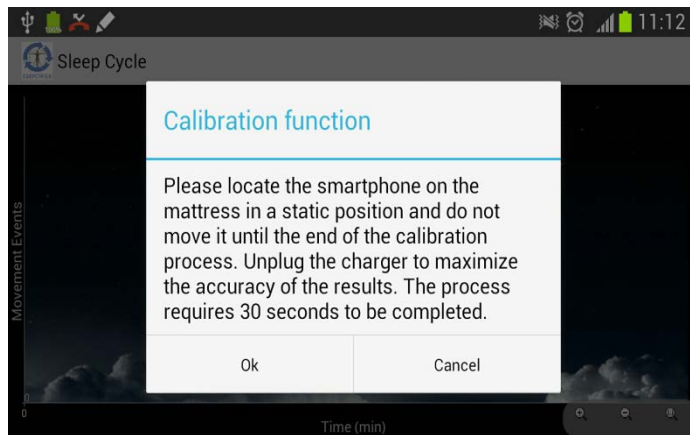
Movement Monitoring ☒

Done Cancel

Sleep diary: re-usable sleep session alarms



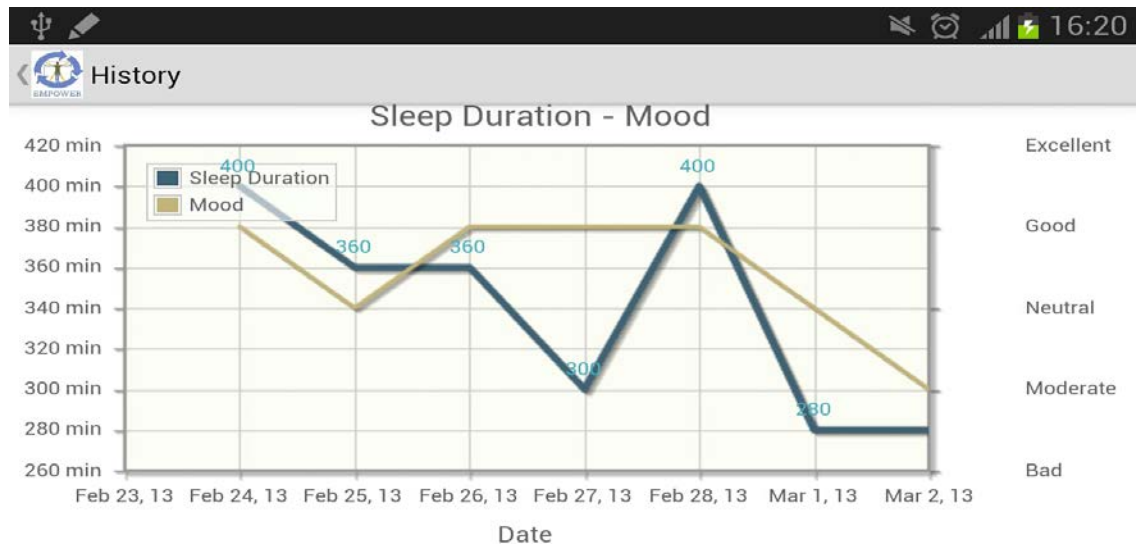
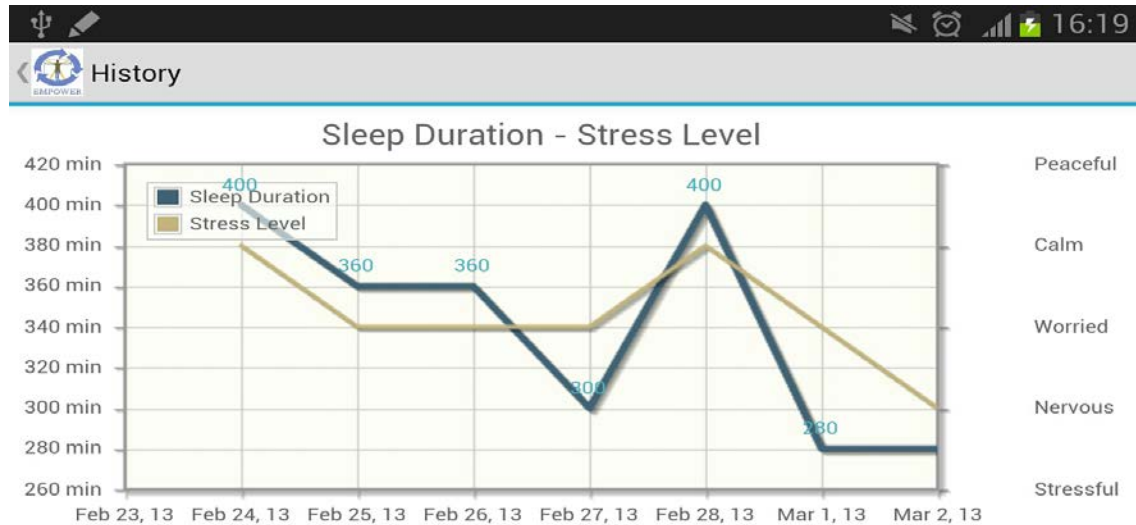
Sleep diary: live sleep session tracking



Sleep diary: relaxing sounds



Sleep diary: charts





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visit www.empower-fp7.eu

Thank you!

Dr Ilias Lamprinos

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