



INTRACOM

T E L E C O M

Technology Shaping the Broadband Future

Mobile Personal Health Application for Empowering Diabetic Patients:

The Case within EMPOWER Project

Dr Ilias Lamprinos

Intracom S.A. Telecom Solutions
19.7 km Markopoulou Ave., 19002 Peania, Athens, Greece
tel.: +30 2106671000 | fax: +30 2106671001 | www.intracom-telecom.com

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
<ul style="list-style-type: none"> ▶ 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™) 	<ul style="list-style-type: none"> ▶ 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™) 	<ul style="list-style-type: none"> ▶ 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

▶ **Excellence in Telecommunication Products, Solutions & 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)

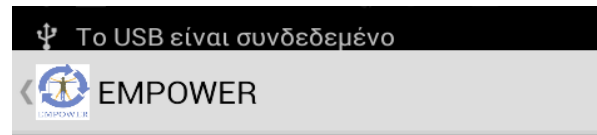
The EMPOWER Project - Facilitating Self-Management of Diabetes Patients by Intelligent, Knowledge-Based Pathways

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

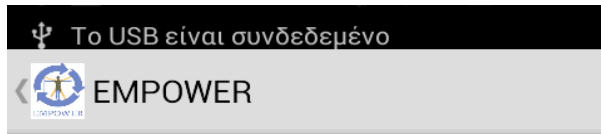


Sleep Diary



Nutrition

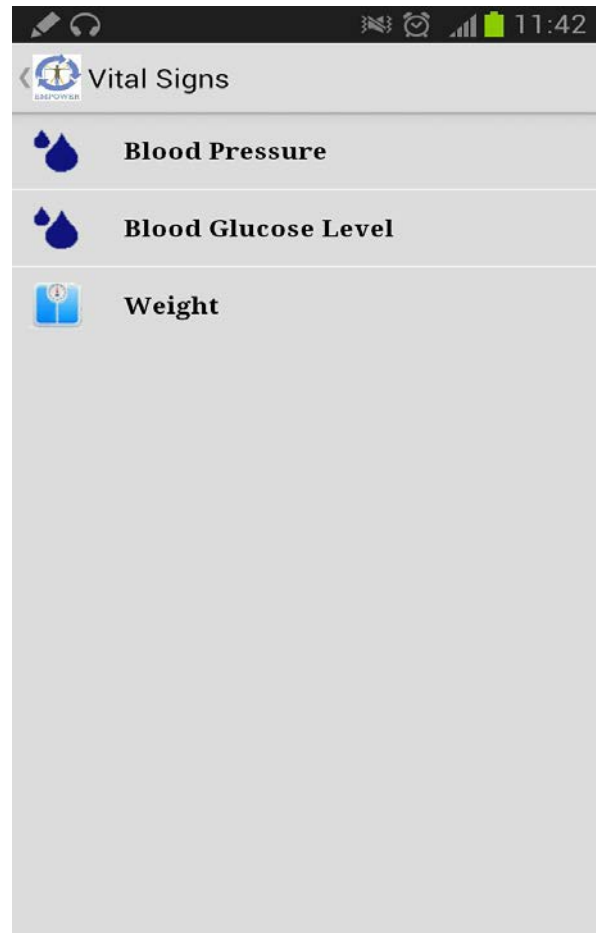
Vital signs collection



Sleep Diary



Nutrition



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

- +

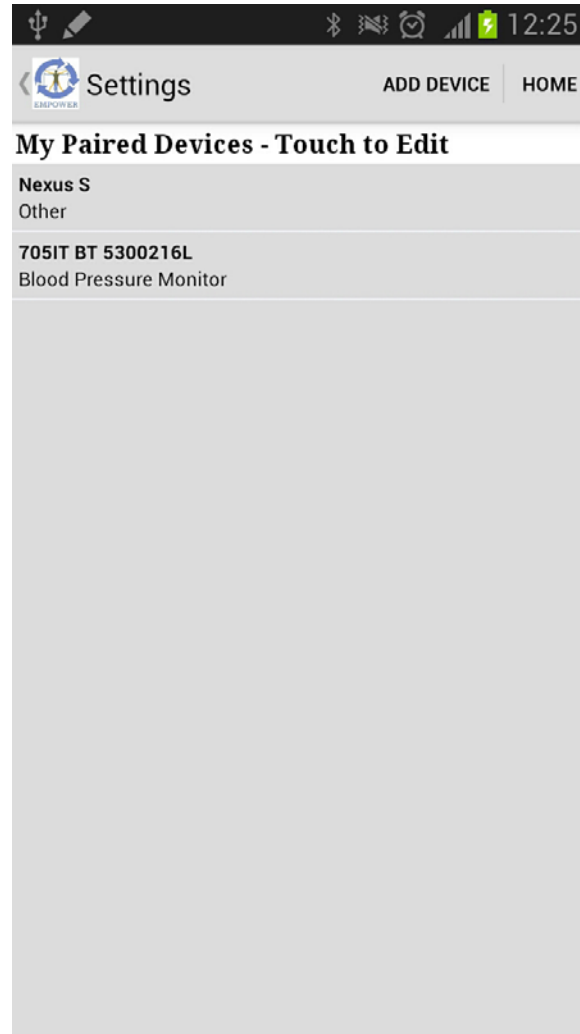
Set Time
13:35 PM

After lunch

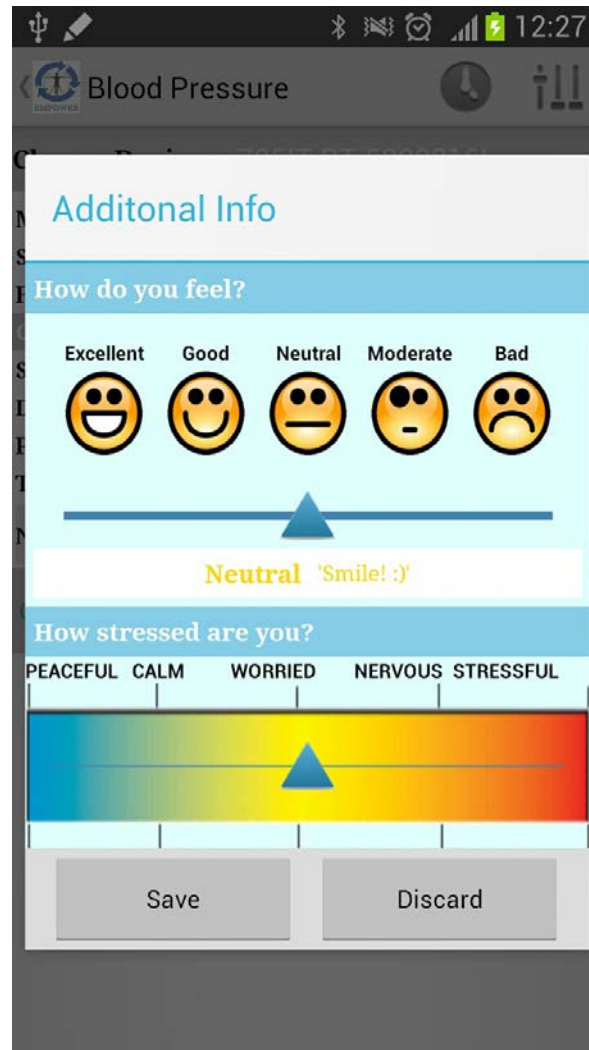
Insert

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

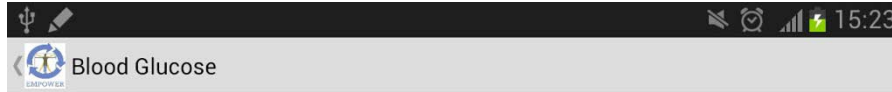
Vital signs collection: History (list view)

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

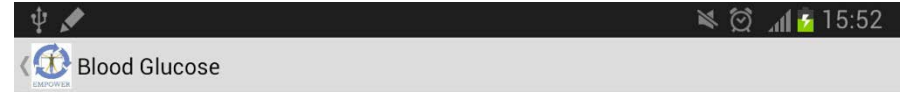
Weight		SORT BY	
80.0 KG	1.69 CM BMI: 28.01		
	12:32 PM, Wed, 2 Apr 2013 BEFORE BREAKFAST		
90.8 KG	1.69 CM BMI: 31.79		
	12:32 PM, Mon, 3 Mar 2013 BEFORE BREAKFAST		
80.0 KG	1.69 CM BMI: 28.01		
	21:09, Sat, 1 Mar 2013 BEFORE DINNER		
121.6 KG	1.69 CM BMI: 42.58		
	21:09, Sun, 2 Mar 2013 BEFORE DINNER		
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		

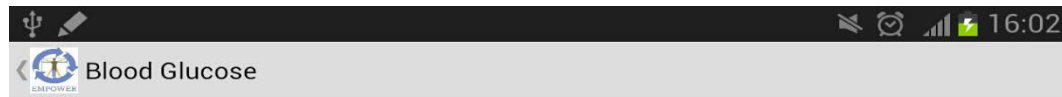
Vital signs collection: History (line charts)



Peaceful
Calm
Worried
Nervous
Stressful



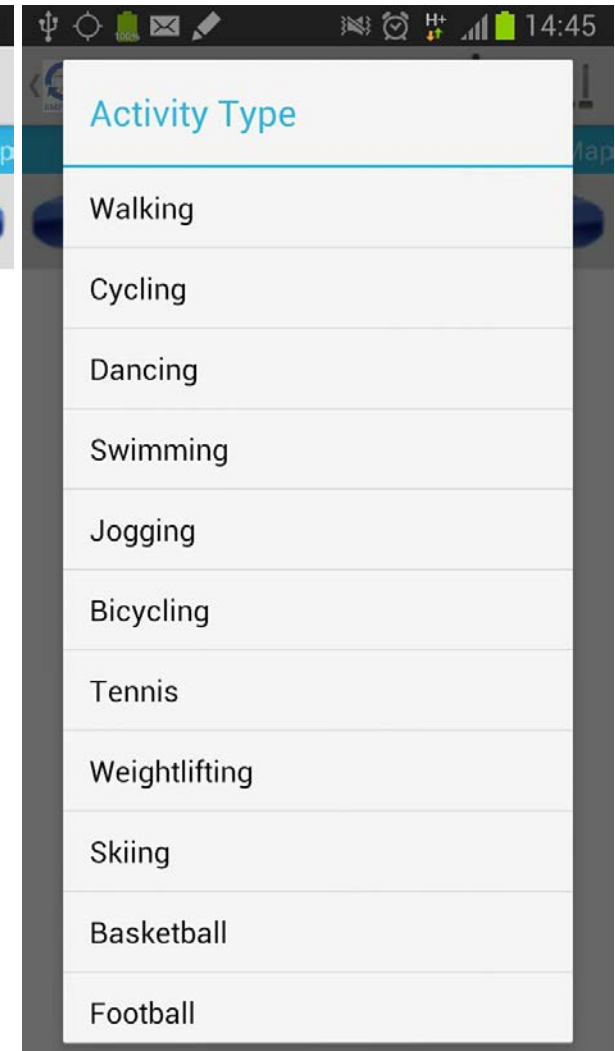
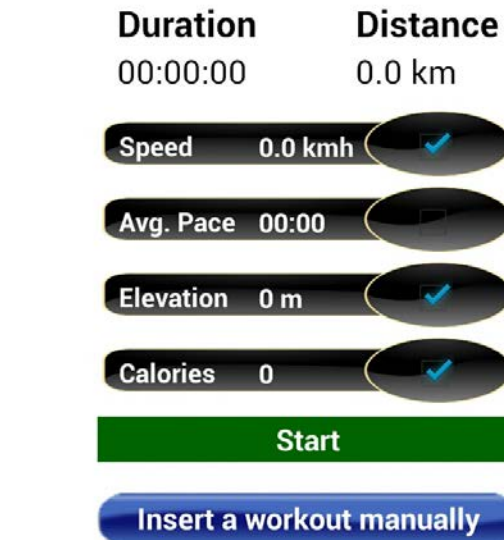
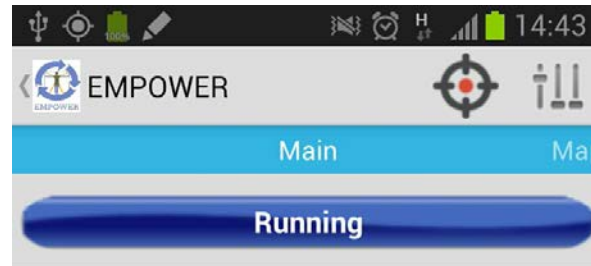
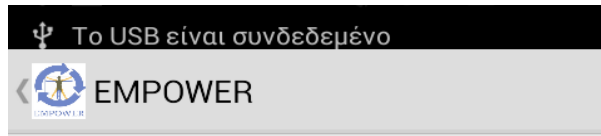
Excellent
Good
Neutral
Moderate
Bad



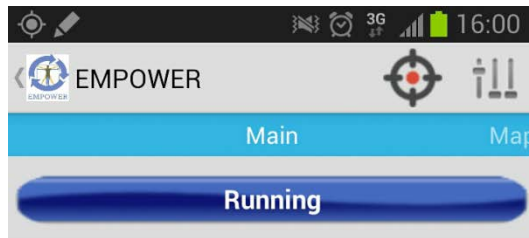
440 min
410 min
380 min
350 min
320 min
290 min
260 min



Physical activity monitoring



Physical activity: automatic monitoring



Duration 00:02:26
Distance 0.08 km

Your Goal: 2 km

Speed 3.32km

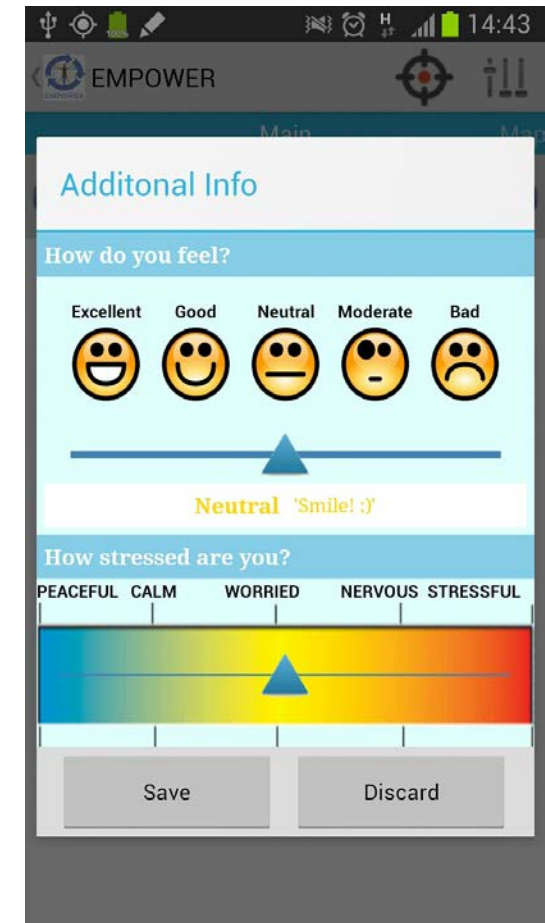
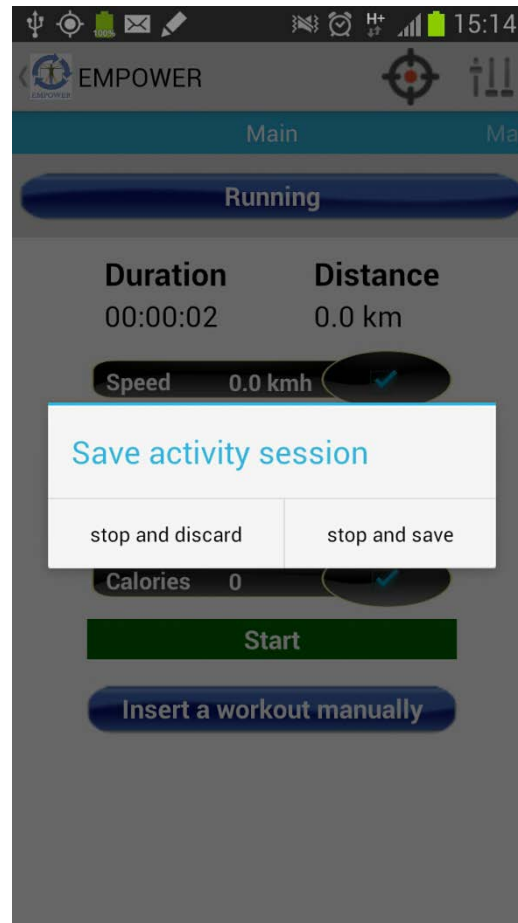
Avg. Pace 13:00

Elevation 157.7858

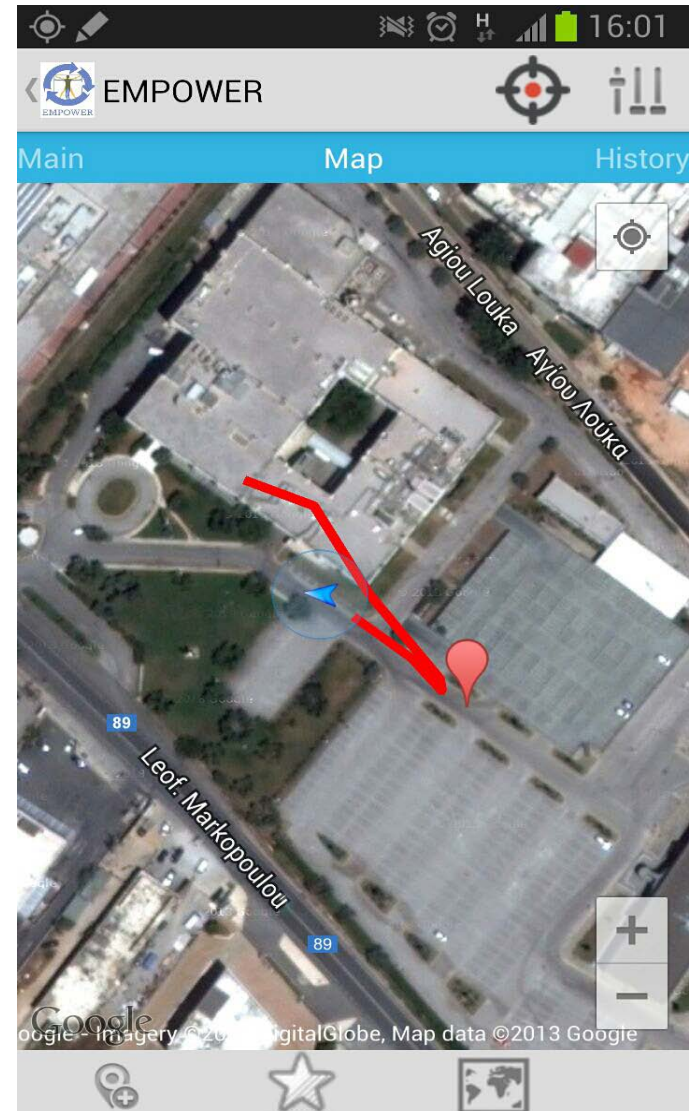
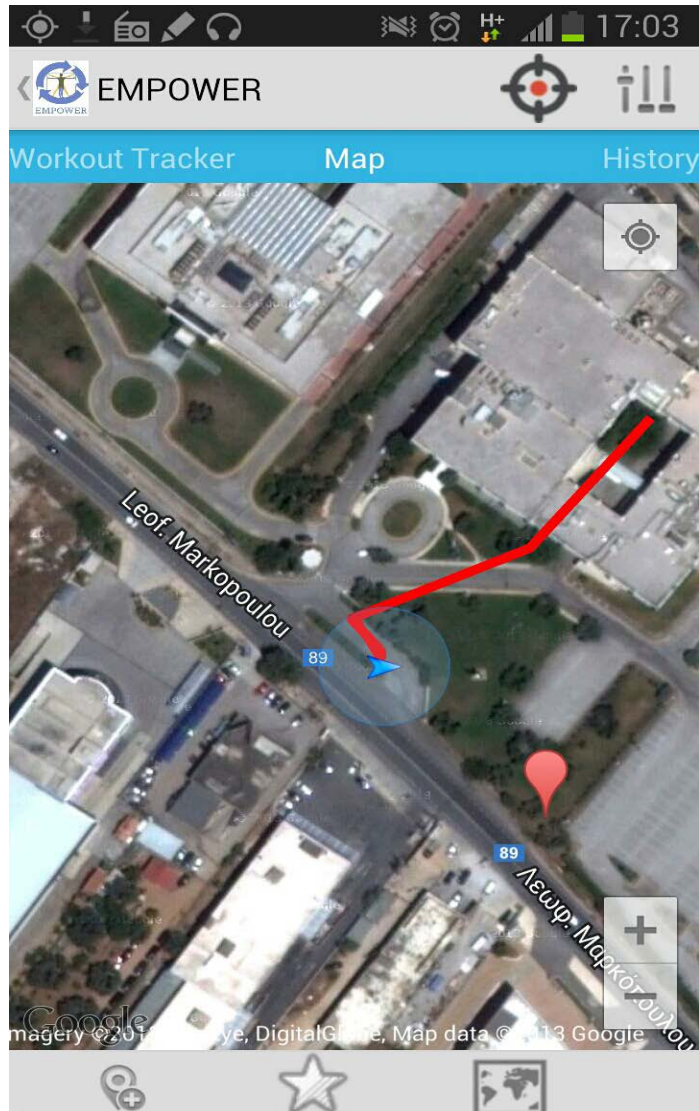
Calories 10

Stop

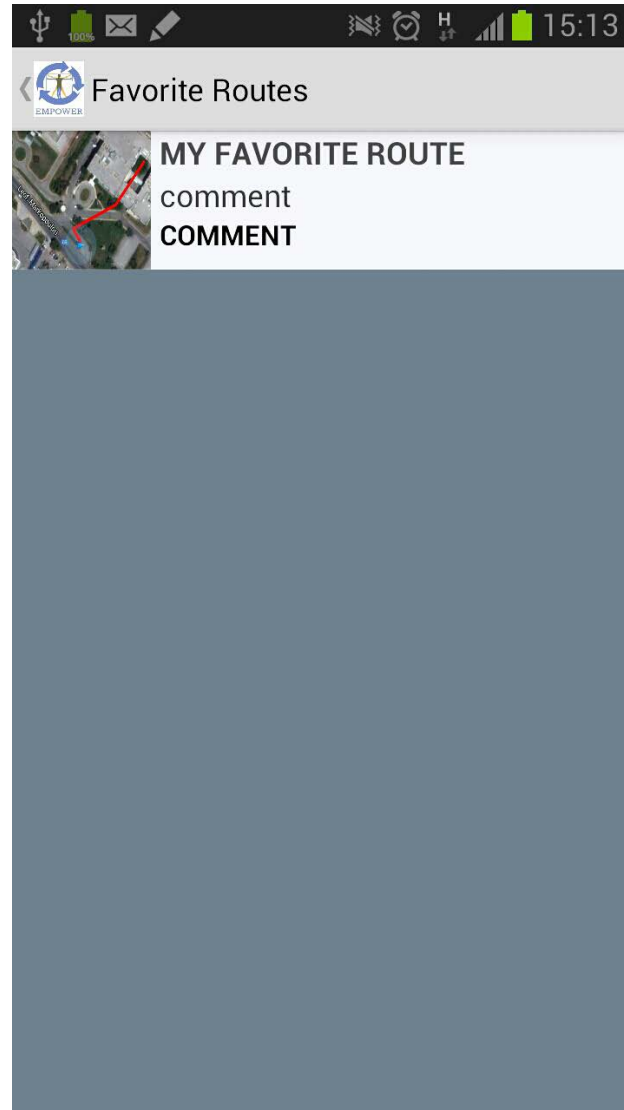
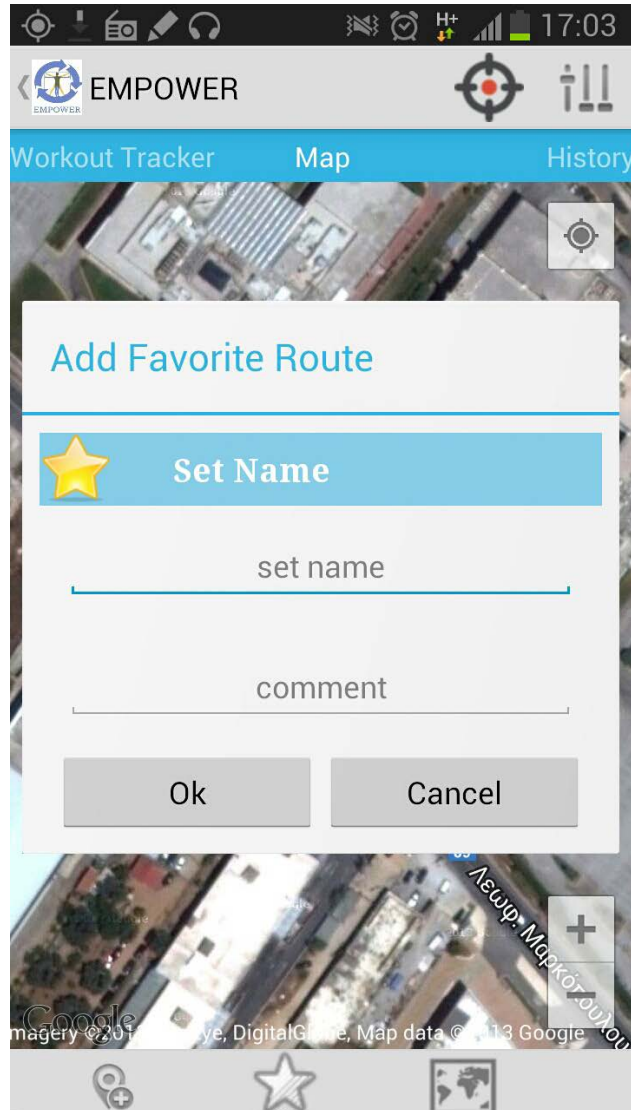
Insert a workout manually



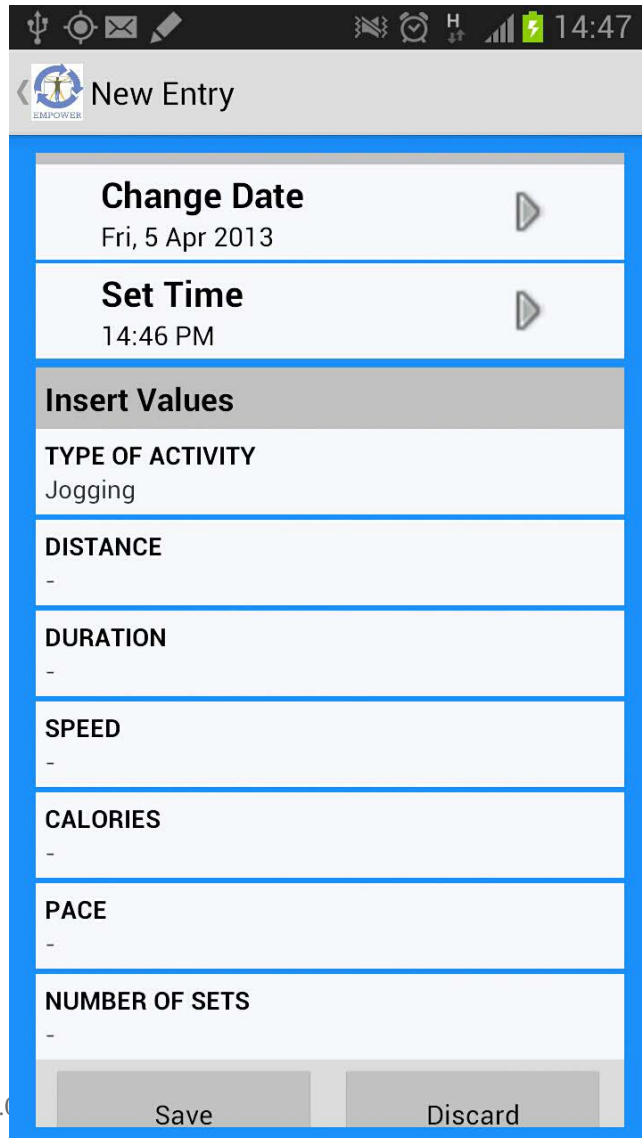
Physical activity: route tracking on a map



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
-

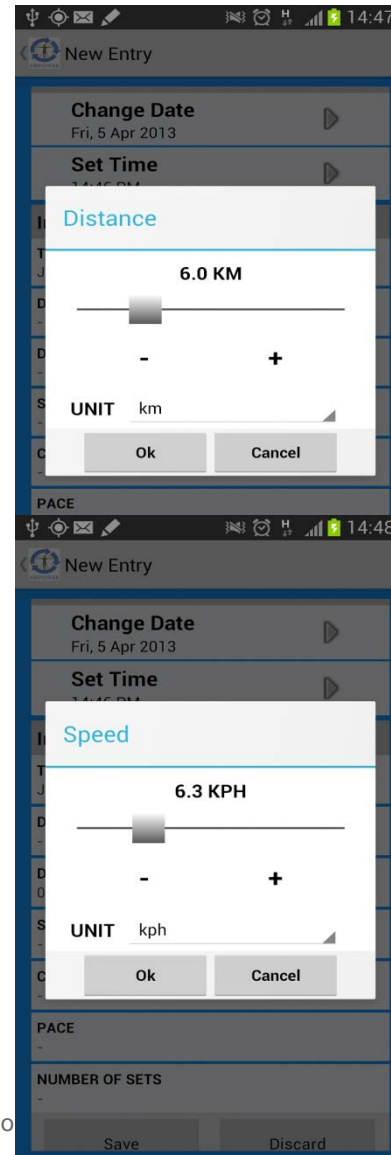
SPEED
-

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

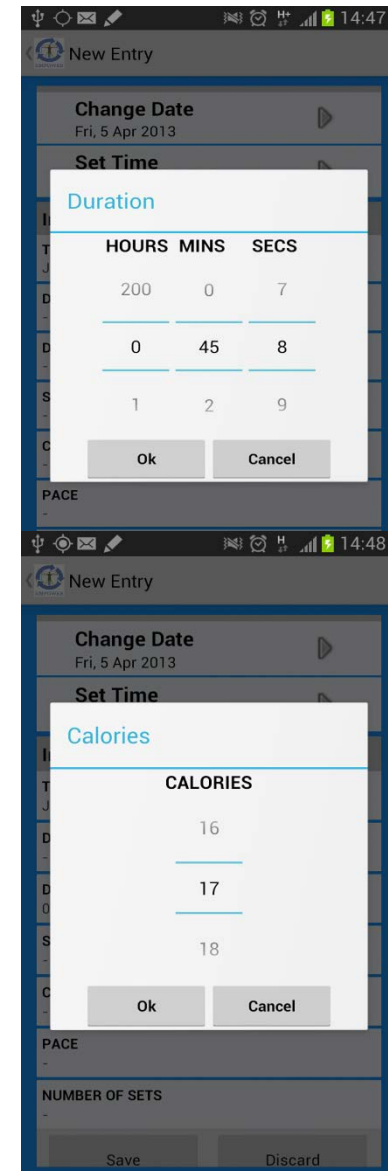
Distance
6.0 KM

Speed
6.3 KPH

PACE
-

NUMBER OF SETS
-

Save Discard



New Entry

Change Date
Fri, 5 Apr 2013

Set Time
14:46 PM

Duration

HOURS	MINS	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

Duration
200 0 7

Calories
16

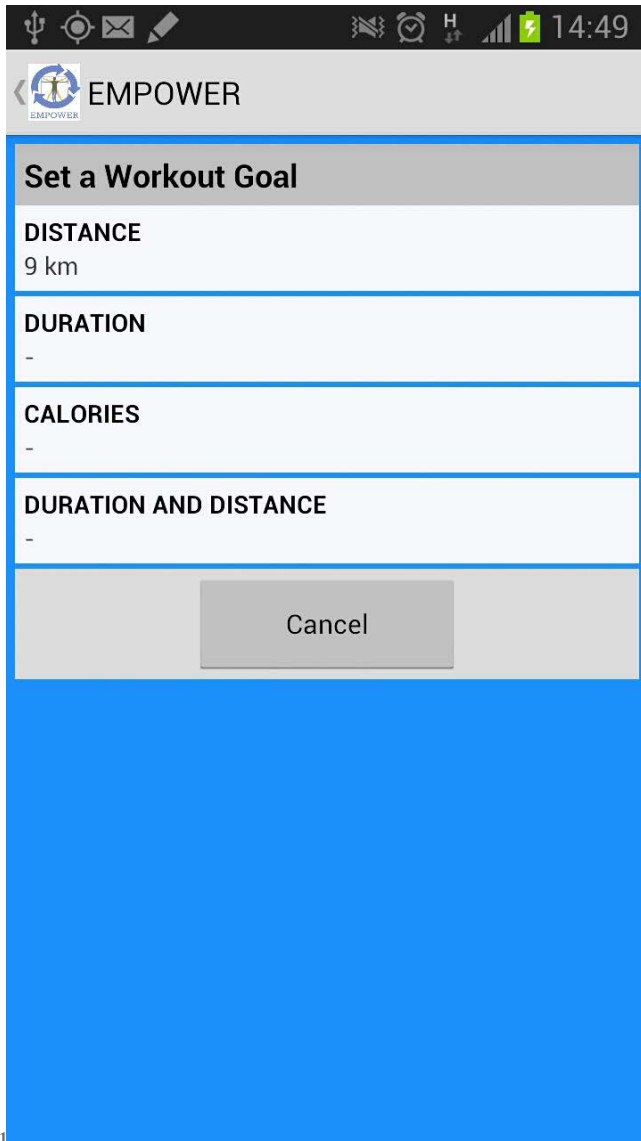
PACE
-

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



Map	History
10.4 KM	DURATION: 1:00:0 2-2-2013, 14:51 PM
☹️	
 CYCLING	SPEED: 8.0 KPH
8.1 KM	DURATION: 0:16:0 3-5-2013, 14:51 PM
😊	
 CYCLING	SPEED: 8.0 KPH
8.1 KM	DURATION: 0:16:0 3-7-2013, 14:51 PM
😊	
 WALKING	SPEED: 8.0 KPH
8.1 KM	DURATION: 0:16:0 3-13-2013, 14:51 PM
😊	
 WALKING	SPEED: 8.0 KPH
8.1 KM	DURATION: 0:16:0 3-15-2013, 14:51 PM
☹️	
 BICYCLING	SPEED: 9.9 KPH
12.6 KM	DURATION: 1:0:0 3-29-2013, 14:53 PM
☹️	

Nutrition diary

🔌 Το USB είναι συνδεδεμένο

EMPOWER



Vital Signs



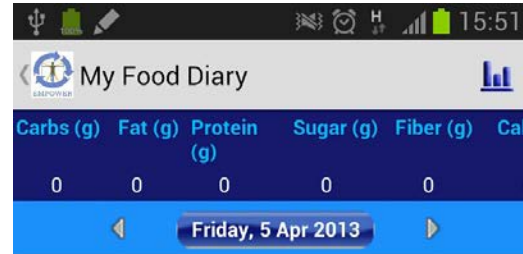
Physical Exercise



Sleep Diary



Nutrition

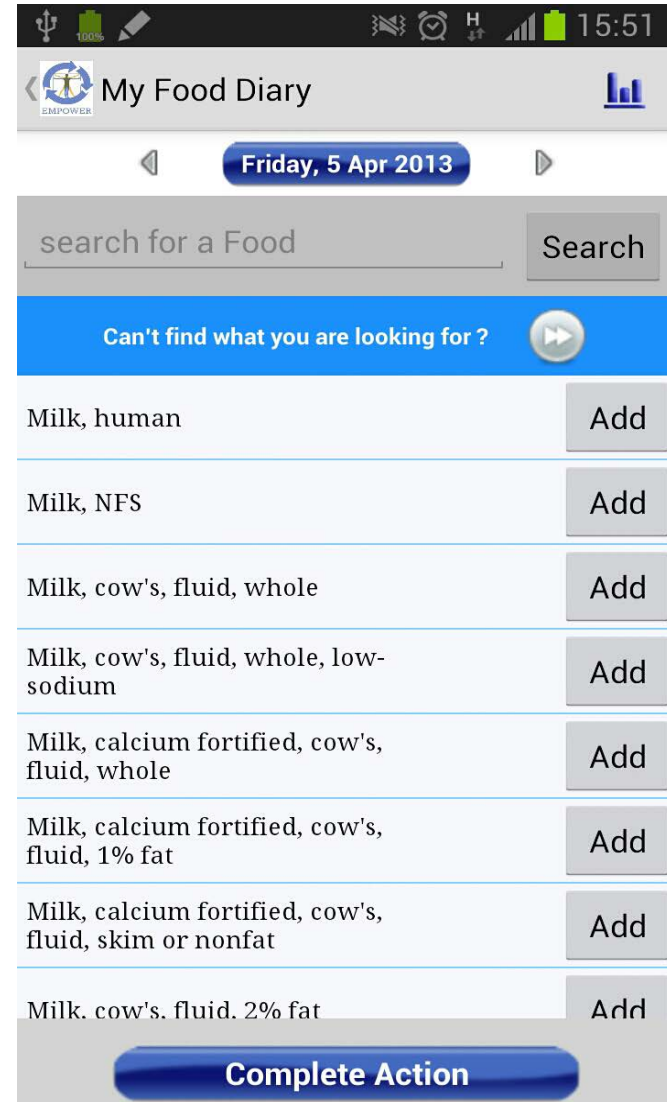
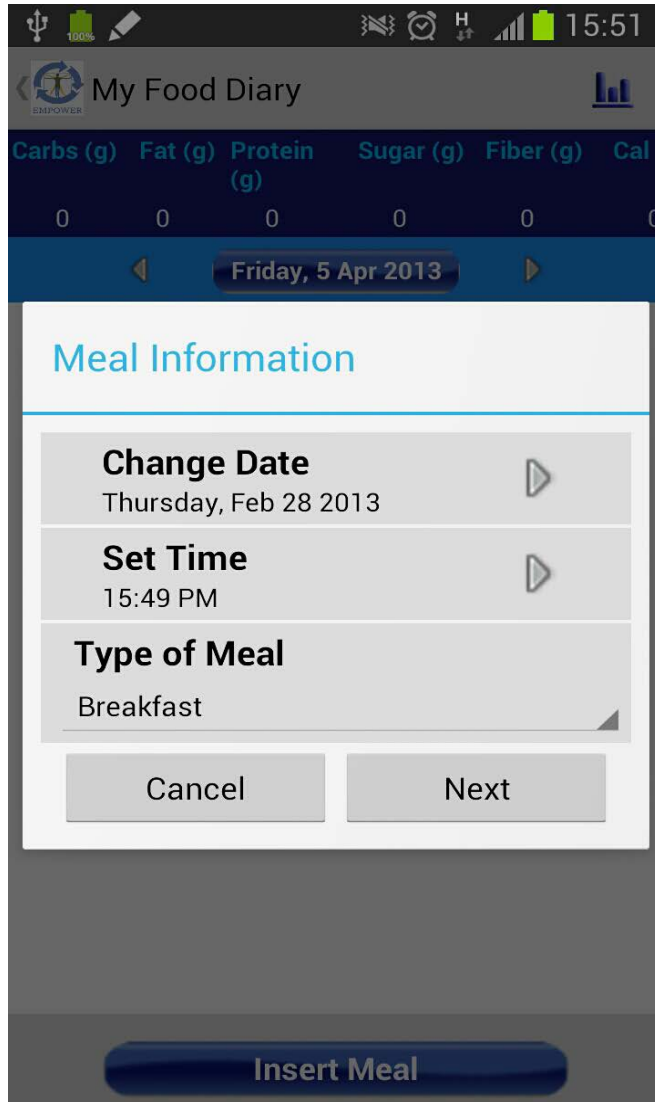


Carbs (g)	Fat (g)	Protein (g)	Sugar (g)	Fiber (g)	Cal
0	0	0	0	0	0

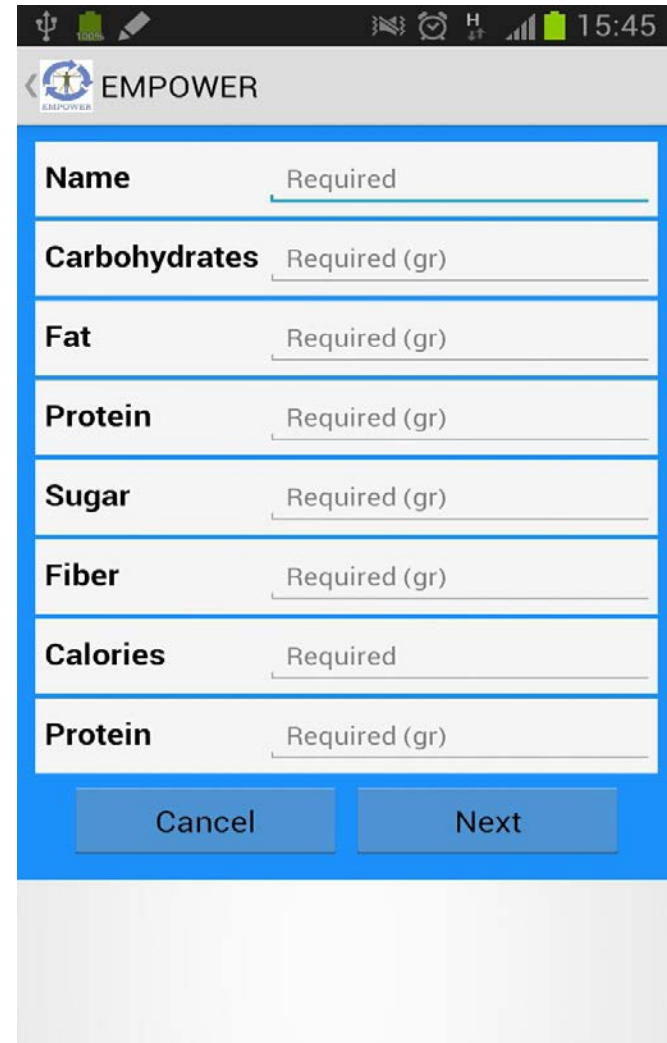
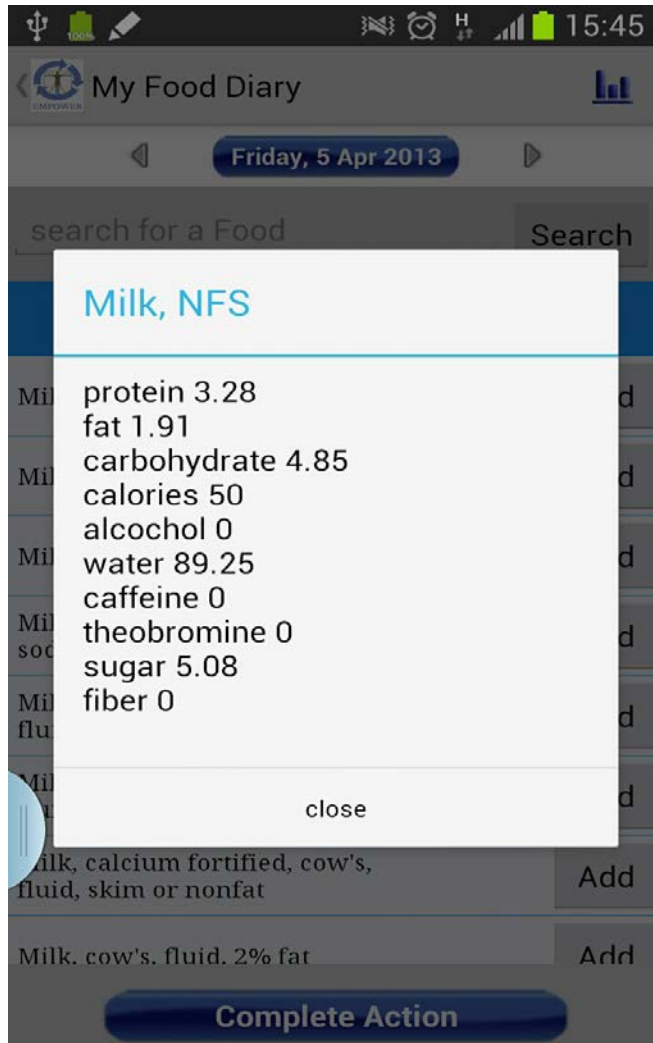
Friday, 5 Apr 2013

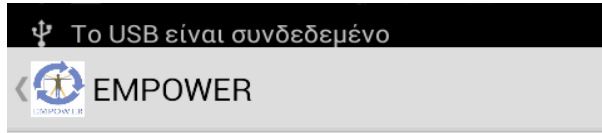
Insert Meal

Nutrition diary: edit and store a meal entry



Nutrition diary: overview of nutrition facts





Vital Signs



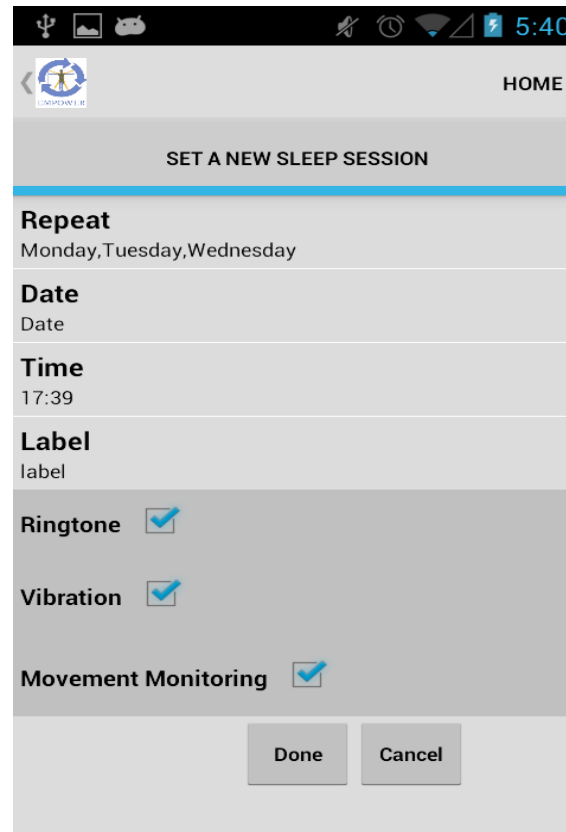
Physical Exercise



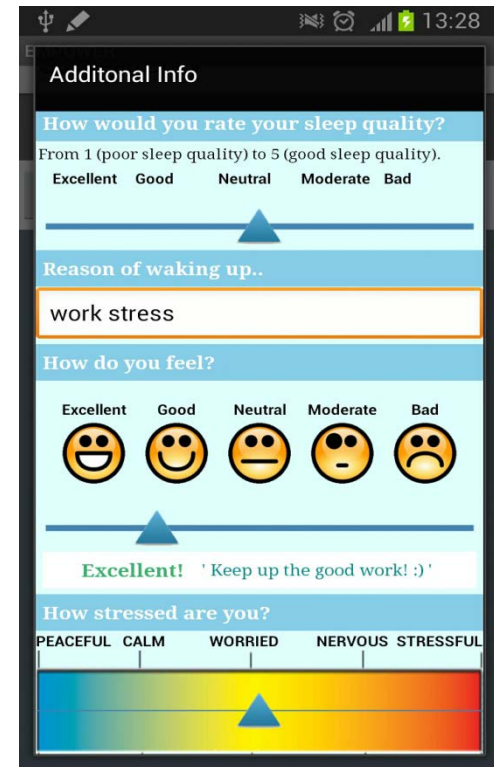
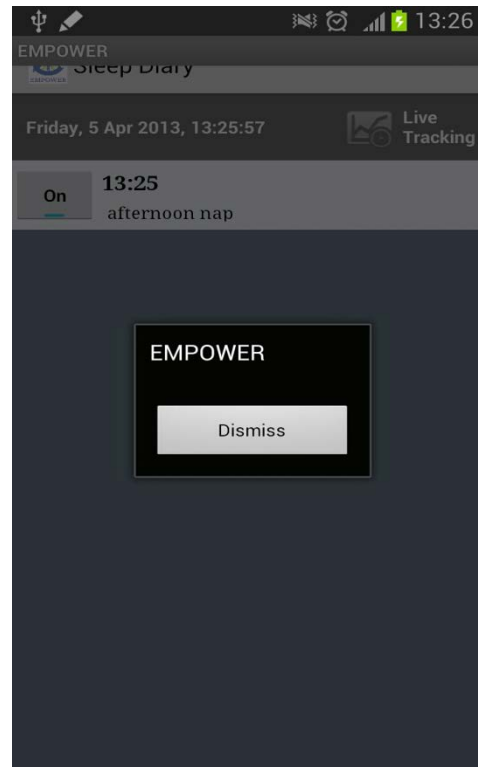
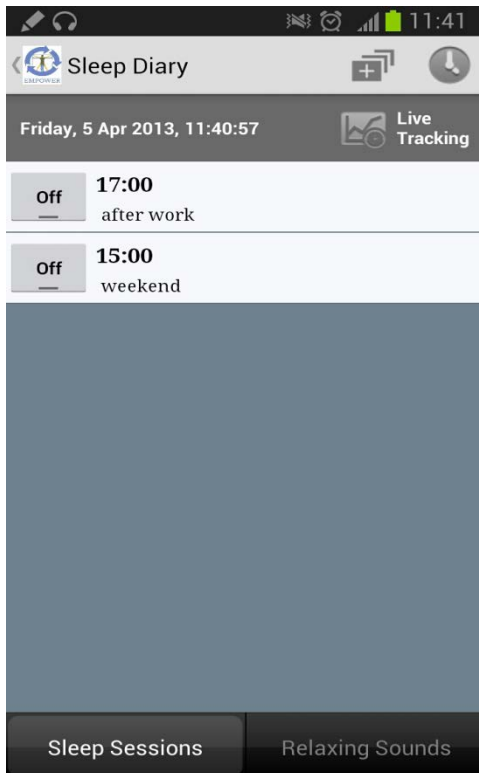
Sleep Diary



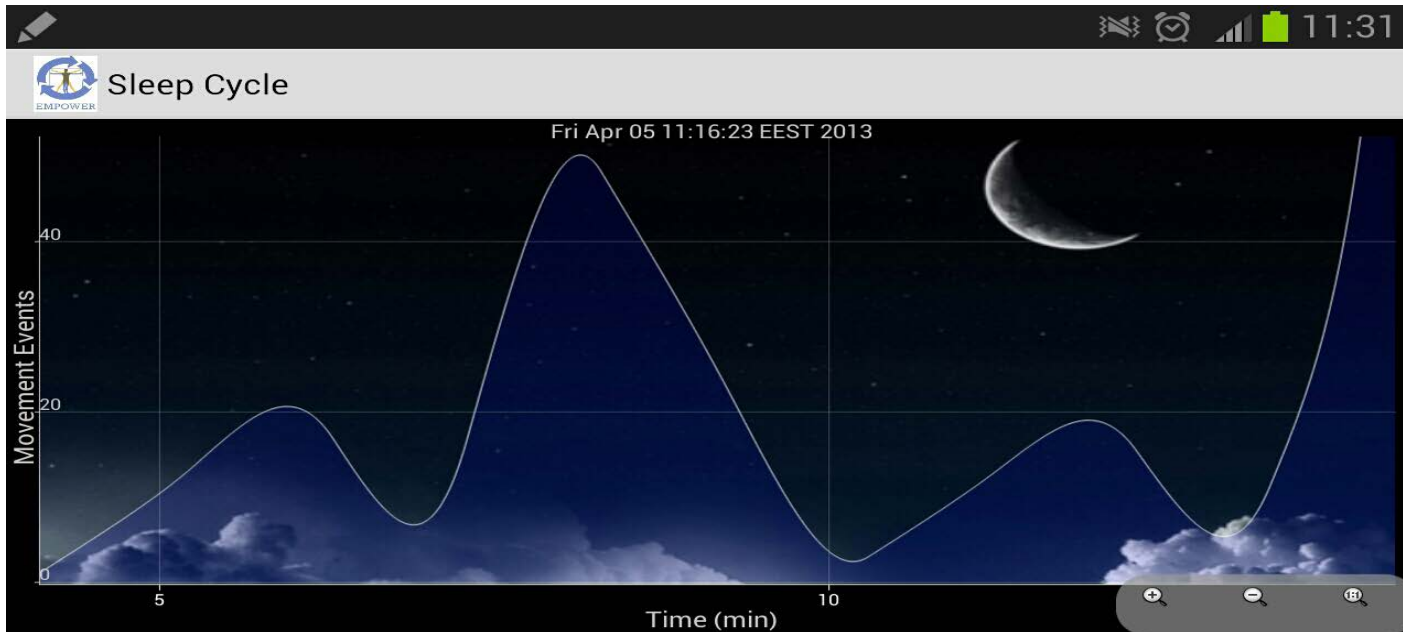
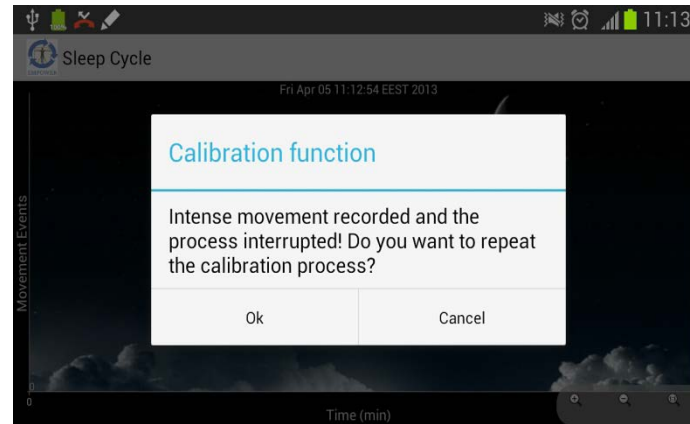
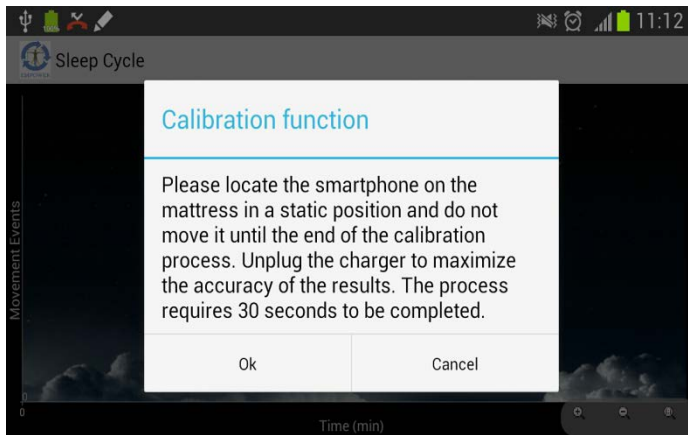
Nutrition



Sleep diary: re-usable sleep session alarms



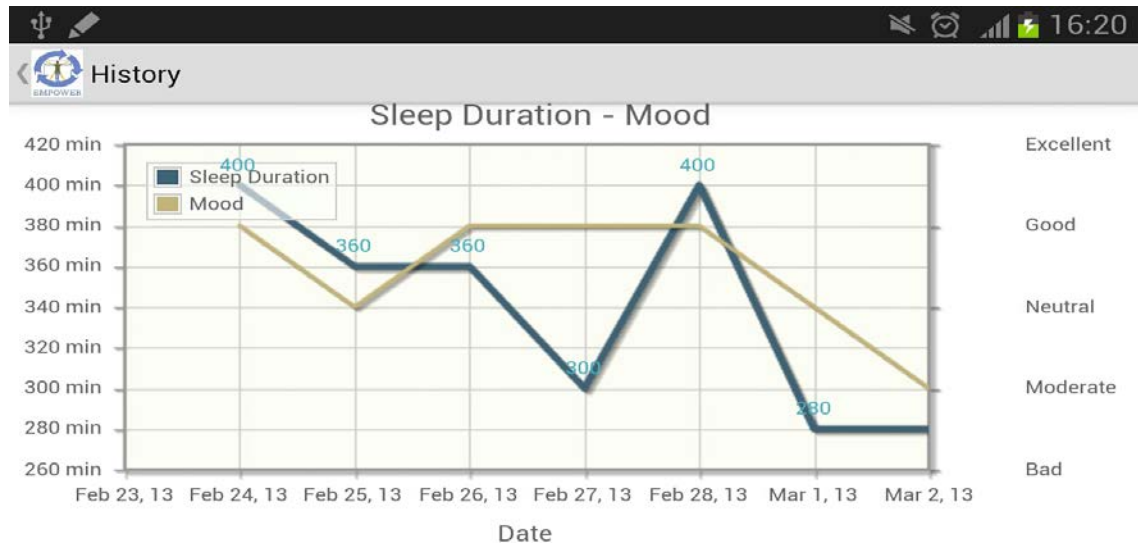
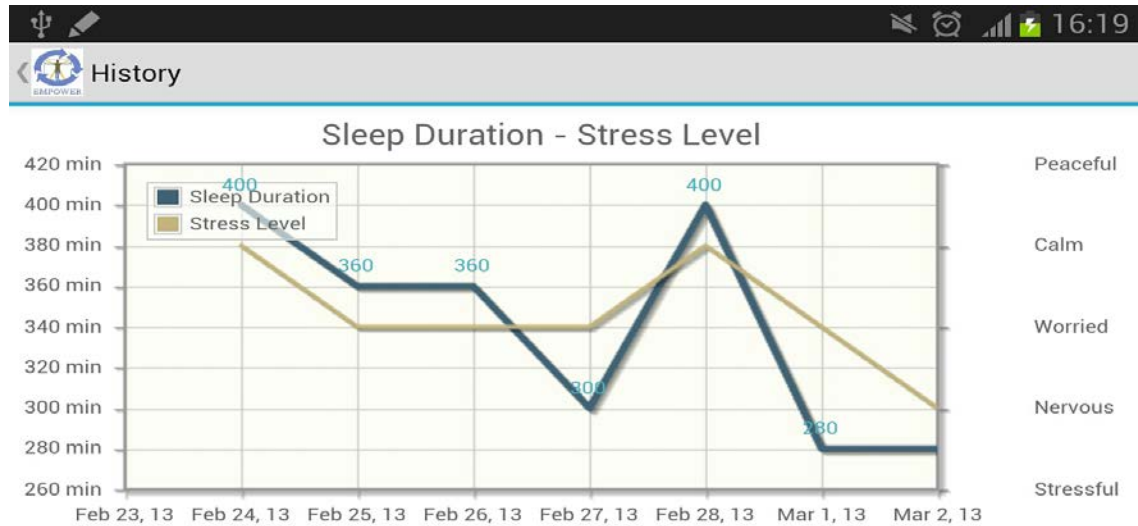
Sleep diary: live sleep session tracking



Sleep diary: relaxing sounds



Sleep diary: charts





INTRACOM

T E L E C O M

Technology Shaping the Broadband Future

visit www.empower-fp7.eu

Thank you!

Dr Ilias Lamprinos

Intracom S.A. Telecom Solutions
19.7 km Markopoulou Ave., 19002 Peania, Athens, Greece
tel.: +30 2106671000 | fax: +30 2106671001 | www.intracom-telecom.com

SITRONICS
telecom solutions ■