Mobile Personal Health Application for Empowering Diabetic Patients:
The Case within EMPOWER Project

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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
Product Portfolio

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

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

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Intracom Telecom, Telco Software Department, Greece
Software Research, Development and Consultation, Turkey
Salzburg Research Forschungsgesellschaft, Knowledge and Media Technologies, Austria
EMPOWER Mobile app

- Vital Signs
- Physical Exercise
- Sleep Diary
- Nutrition
Vital signs collection

- **Vital Signs**
- **Physical Exercise**
- **Sleep Diary**
- **Nutrition**

**Vital Signs**
- Blood Pressure
- Blood Glucose Level
- Weight
**Vital signs collection: manual entry**

**Vital Signs**

**Blood Pressure**
- Systolic: 13 mm/Hg
- Diastolic: 66 mm/Hg
- Pulse: 76 bpm

**Set Date**
- Fri, 5 Apr 2013

**Set Time**
- 11:42 AM

Before breakfast

**Insert from device**

**Set Time**
- 13:01 PM
- 13:38 AM

**Insert**

**Insert from device**

**Weight (kg)**
- 80.0 kg

**Blood Glucose (mg/dl)**
- 132.0 mg/dl

**Insert from device**

**Set Time**
- 13:35 PM
- 13:01 PM

**Insert**

**Insert from device**

**Set Time**
- 13:01 PM
- 13:35 PM

**Insert**

**Insert from device**

**Insert from device**

**Insert from device**
Vital signs collection: automatic entry

**My Paired Devices - Touch to Edit**

- **Nexus S**
- **705IT BT 5300216L**

**Choose Device:** 705IT BT 5300216L

- **Manufacturer:** OMRON BP
- **Serial Number:** 215300216L
- **Firmware:** CS10117-3AE01

**Current Measurements**

- **Systolic:** 100
- **Diastolic:** 70
- **Pulse:** 90
- **Time taken:** 5 Apr 2013, 12:26:56

**Note:** Before breakfast

**Search for Devices**
Vital signs collection: additional Information

![Image of a mobile health application interface]

- **Blood Pressure**
- **Additional Info**
  - **How do you feel?**
    - Excellent
    - Good
    - Neutral
    - Moderate
    - Bad
  - **Neutral** 'Smile! :)'”
- **How stressed are you?**
  - Peaceful
  - Calm
  - Worried
  - Nervous
  - Stressful
  - **Neutral**
Vital signs collection: History (list view)

**Blood Pressure**
- **BPM** 12:25 PM, Tuesday, 25 Feb 2013
  - **67 BPM**
- **BPM** 12:25 PM, Wednesday, 26 Feb 2013
  - **77 BPM**
- **BPM** 12:25 PM, Thursday, 27 Feb 2013
  - **77 BPM**
- **BPM** 12:25 PM, Friday, 28 Feb 2013
  - **76 BPM**
- **BPM** 12:25 PM, Saturday, 1 Feb 2013
  - **76 BPM**
- **BPM** 12:25 PM, Sunday, 2 Feb 2013
  - **78 BPM**

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

**Blood Glucose**
- **178.0 MG/DL** 13:14 PM, Sat, 5 Apr 2013
  - **1.69 CM**
  - **BETWEEN BREAKFAST**
- **184.0 MG/DL** 13:35 PM, Wed, 5 Mar 2013
  - **1.69 CM**
  - **BETWEEN BREAKFAST**
- **204.0 MG/DL** 13:35 PM, Thu, 6 Mar 2013
  - **1.69 CM**
  - **AFTER LUNCH**
- **204.0 MG/DL** 13:35 PM, Fri, 7 Mar 2013
  - **1.69 CM**
  - **AFTER LUNCH**
- **204.0 MG/DL** 13:35 PM, Sat, 8 Mar 2013
  - **1.69 CM**
  - **AFTER LUNCH**
- **234.0 MG/DL** 13:35 PM, Sun, 9 Mar 2013
  - **1.69 CM**
  - **AFTER LUNCH**
- **160.0 MG/DL** 13:35 PM, Mon, 10 Mar 2013
  - **1.69 CM**
  - **AFTER LUNCH**
- **132.0 MG/DL** 13:35 PM
Vital signs collection: History (line charts)
Physical activity monitoring

**Vital Signs**

**Sleep Diary**

**Physical Exercise**

**Nutrition**

**Activity Type**
- Walking
- Cycling
- Dancing
- Swimming
- Jogging
- Bicycling
- Tennis
- Weightlifting
- Skiing
- Basketball
- Football

**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

- Speed: 3.32 km
- Avg. Pace: 13:00
- Elevation: 157.7858
- Calories: 10

Stop
Insert a workout manually

Save activity session
- stop and discard
- stop and save

Duration: 00:00:02
Distance: 0.0 km

How do you feel?
- Excellent
- Good
- Neutral
- Moderate
- Bad

Neutral "Smile! :)"

How stressed are you?
- Peaceful
- Calm
- Worried
- Nervous
- Stressful

Save
Discard
Physical activity: route tracking on a map
Physical activity: favorite routes
Physical activity: manual entry of activities
### Physical Activity: Set Goals and View Past Sessions

**Set a Workout Goal**

<table>
<thead>
<tr>
<th><strong>DISTANCE</strong></th>
<th>9 km</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DURATION</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>CALORIES</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>DURATION AND DISTANCE</strong></td>
<td>-</td>
</tr>
</tbody>
</table>

**Map History**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Distance</th>
<th>Duration</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYCLING</td>
<td>8.1 KM</td>
<td>0:16:0</td>
<td>3-5-2013</td>
<td>14:51 PM</td>
</tr>
<tr>
<td>WALKING</td>
<td>8.1 KM</td>
<td>0:16:0</td>
<td>3-13-2013</td>
<td>14:51 PM</td>
</tr>
<tr>
<td>BICYCLING</td>
<td>12.6 KM</td>
<td>1:0:0</td>
<td>3-29-2013</td>
<td>14:53 PM</td>
</tr>
</tbody>
</table>

**Cancel**
Nutrition diary

- Vital Signs
- Physical Exercise
- Sleep Diary
- Nutrition
Nutrition diary: edit and store a meal entry

- Change Date: Thursday, Feb 28 2013
- Set Time: 15:49 PM
- Type of Meal: Breakfast

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

Insert Meal

Complete Action
Nutrition diary: overview of nutrition facts

**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

**EMPOWER**
- **Name**: Required (Required)
- **Carbohydrates**: Required (gr)
- **Fat**: Required (gr)
- **Protein**: Required (gr)
- **Sugar**: Required (gr)
- **Fiber**: Required (gr)
- **Calories**: Required
- **Protein**: Required (gr)
Sleep diary

Vital Signs
Physical Exercise
Sleep Diary
Nutrition

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

Calibration function

Please locate the smartphone on the mattress in a static position and do not move it until the end of the calibration process. Unplug the charger to maximize the accuracy of the results. The process requires 30 seconds to be completed.

Ok
Cancel

Calibration function

Intense movement recorded and the process interrupted! Do you want to repeat the calibration process?

Ok
Cancel
Sleep diary: relaxing sounds

- Water Fall
- Wind Whistle
- Nature
- Sky illusion
- Ocean Waves
- Dolphin Dreams
Sleep diary: charts

Sleep Duration - Stress Level

Sleep Duration - Mood

Date

Excellent
Good
Neutral
Moderate
Bad

Peaceful
Calm
Worried
Nervous
Stressful

Mobile Personal Health Application for Empowering Diabetic Patients
visit www.empower-fp7.eu

Thank you!

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