



COURSE 3

CARELINK Third Party Integrators



Basics for System Integration

Topics in This Section

- This section of module addresses in brief the three proposed environments for CARELINK project.



Overview

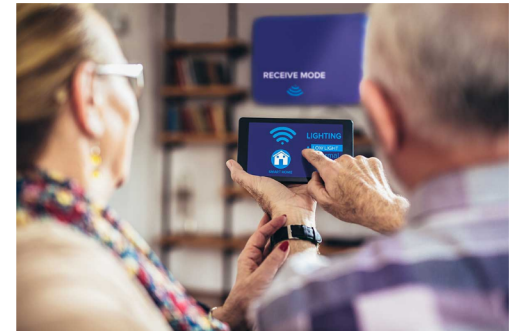
- The CARELINK environments make use of different types of devices and configurations that can be customized to specific scenarios.
- The vision of such environments is to provide a multitude of opportunities to be used, adapted, and configured for different needs of users.



Utility Requirements

To reach the major goal of the CARELINK project, the proposed technologies require hardware suited with:

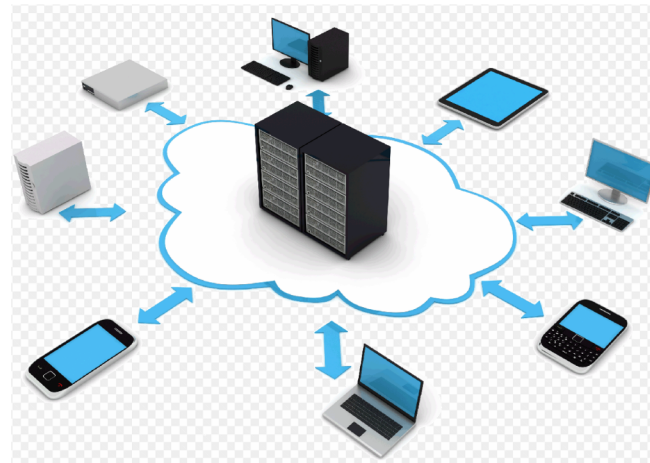
- Localization capabilities,
- Communication capabilities,
- Sensing capabilities,
- Low energy consumption rates,
- Small-sized, and
- Lower-cost.



Environments

Three environments for CARELINK are considered, including:

- ❑ *Environment 1: Easy Acceptance Smartphone and Smartwatch,*
- ❑ *Environment 2: Electronics and networking, and*
- ❑ *Environment 3: Maximizing power savings.*



Environment 1: Easy Acceptance of Smartphone or Smartwatch

- ❑ The main goal of this environment is using commercial devices, enforce acceptance and readiness.
- ❑ Smartphone or smartwatch is the applied device in this environment.
- This environment proposes the usage of sensors built in the smartwatch or smartphone for detecting falls.



Environment 1: Easy Acceptance of Smartphone or Smartwatch

- The second part of this environment concerns about detecting of case that PwD is wandering.



- There is a reference database with acceptable routes.
- Those routes have a buffer zone of acceptable deviation.
- Beyond that buffer, the person is warned to respond for safety.

Samples of Smart Seivices



Environment 2: Electronics and Networking

- ❓ The main goal of this environment is to ensure that communication can establish redundant options.
- ❓ Electronic integrated pack is the applied device in this environment.
- In this case a macro setup is assembled based on an Arduino solution.
- This setup is modular and adaptable to multiple circumstances. Even though it lacks in usability, it promotes a solution.



Environment 2: Electronics and Networking

- The proposed setup in this environment includes, the sensing, processing, and communication advanced capabilities in a macroscopic device.
- This device aims providing more solutions to ensure better communication, even where the telecom operators are not able to provide service.



- This environment will encompass a central device that handles all peripherals and collects data from those devices.

Central Device and its Peripherals



Environment 3: Maximizing Power Savings

- ❑ The main goal of this environment is to maximize the battery duration and extending autonomy.
- ❑ Electronic integrated pack is the applied device in this environment.
 - This environment proposes a setup, with multiple configurations, but is based on strategies for maximizing the duration of the battery.



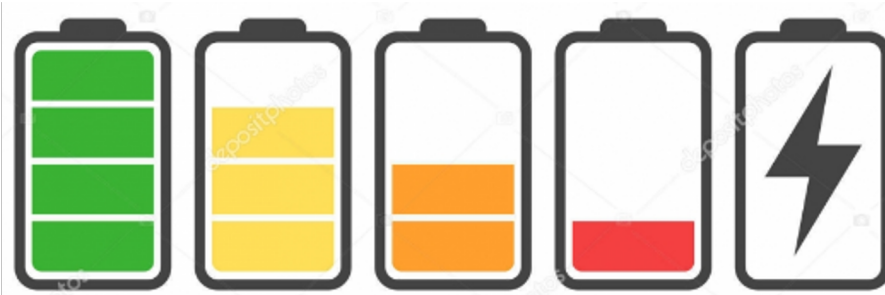
Personalized Device Based on Energy Efficiency



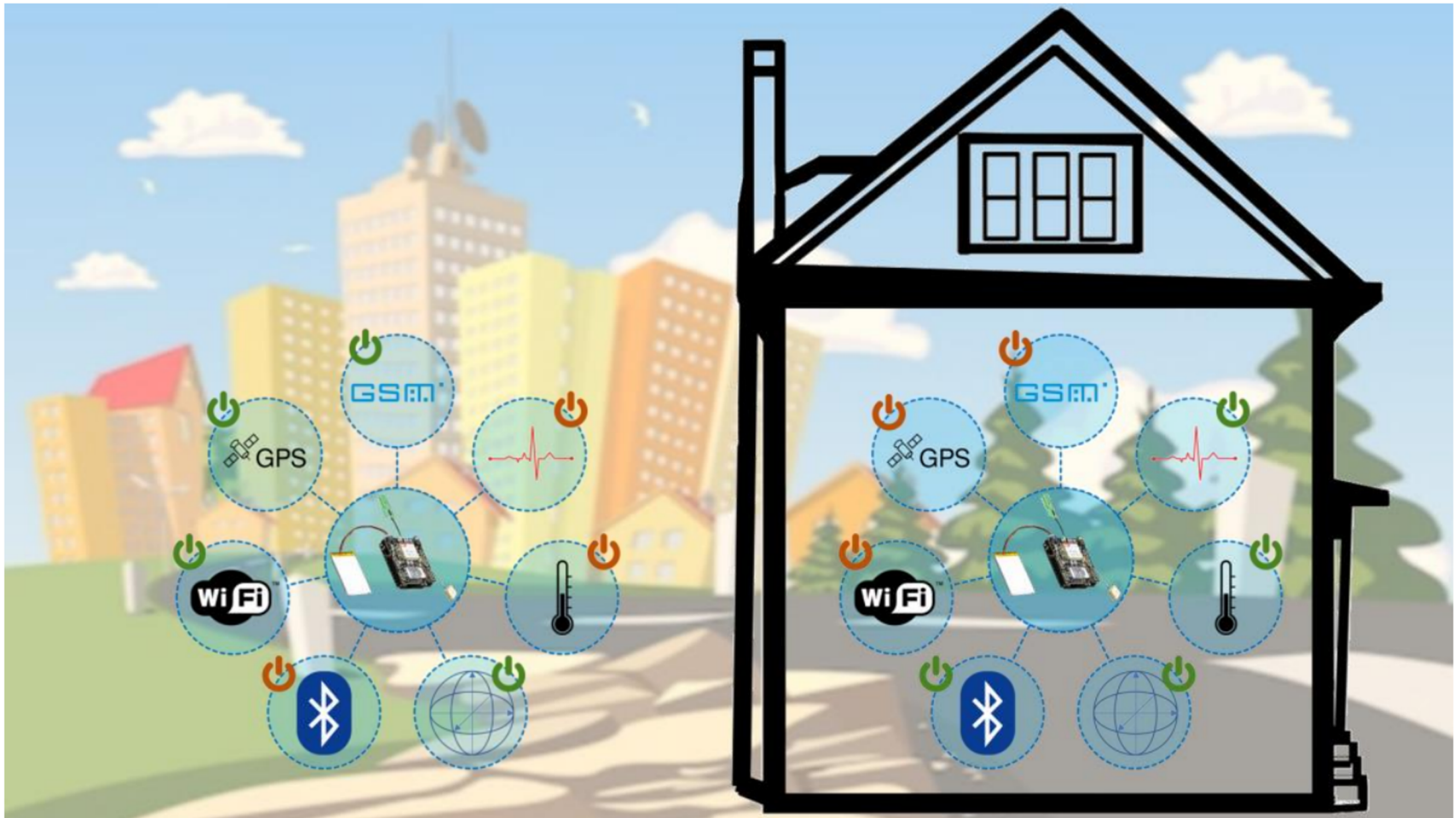
- One of the objective of CARELINK project is to provide a personalized solution, so that families, carers, and PwDs can continue to carry a normal life, assisted by a device that will last battery as long as possible.

Environment 3: Maximizing Power Savings

- This environment provides helpful solutions such as "**extended battery charge**" for both, indoor and outdoor situations.
- To benefit of this solution and develop hardware setups and services, it needs some pre-processing to be locally done.
- It helps to conserve the power by retrieving from processing associate energy spending.
- In addition, it can calculate power consumption of different activities and processing.



Environment 3: Maximizing Power Savings



Environment 3: Maximizing Power Savings



- This environment uses different devices as the location changes, this is done automatically without user driven actions.

- The situations will be automatically configured. In cases that the PwD is at home, GPS will be disconnected with wideband communications and those devices that are useless and waste power unnecessarily.
- In cases that the PwD leaves the home, GPS will be activated along with GSM, 3G/4G or even broadband, and also Wi-Fi will be then disconnected.

Questions



1. **What kind of information do the CARELINK environments need?**
 - A) Historical and Environmental Information
 - B) Digital and Personal Information
 - C) Predictive and Advisory Information
 - D) Environmental and Personal Information
2. **The major goals of the first environmnet are:**
 - A) Helping caregivers to easy contact with community
 - B) Finding accidental falls and wandering
 - C) Easy communication between caregivers and PwDs
 - D) Building a strong social network
3. **In the third environment, how is power consumption controlled?**
 - A) Disconnection of GPS and Wi-Fi when not in use
 - B) Applying More Efficient Batteries
 - C) Using Power Strips
 - D) All Options are True

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