

Development and Demonstration of Waste Electrical & Electronic Equipment (WEEE) Prevention and Reuse Paradigms

Action B.6- Promoting and Supporting WEEE Prevention Culture in Greece

Deliverable B6.2- Quick Repair Guide for Electronic Appliances

-Part 1-

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3. Cellphone-Smartphone

3.1. General-Operation Principles

The smartphone is a cell phone whose mobile telephony operating system is characterized by more computing capacity and better connectivity than a regular cell phone. The first generation of smartphones combined the functions of a Personal Digital Assistant (PDA) and of a regular cell phone. Later models also featured digital cameras and pocket sized video cameras along with GPS navigation units, resulting in the creation of a versatile device. Many contemporary smartphone models have high resolution touch screens and web browsers that can display regular and mobile-friendly websites. Access to high-speed data is provided via Wi-Fi and mobile broadband services. In recent years, rapid growth in the cellphones and cellphone applications' market has led to the widespread use of smartphones.

Smartphones feature touch screens and operate on rechargeable lithium ion batteries.

3.2. Indications of Malfunction-Possible Damages

The most frequent malfunction indications of a cell phone-smartphone and the most common possible damages are presented in the table below:

Table 3 Smartphone Malfunction Indications & Possible Damages

Malfunction		Possible Damage	
No	Indication	No	Possible Cause
1	Charging failure	1	Damaged charger
		2	Damaged charger cable
2	Rapid Discharging (power drain)	3	Battery malfunction
		4	Charger compatibility
3	Slow Response	5	Operation System's malfunction
4	Application's Slow Response	6	Application's installation Error

3.3. Repair Steps

Repair instructions are presented below, for all the possible damages listed in Table 3. The instructions are broken down in steps and are accompanied with pictures so as to provide an overview of the entire repair process.

3.3.1 Repairing charging failure (damaged charger)

In order to repair damage No 1, the required equipment includes:

- Spare smartphone charger
- New charger

Malfunction: Charger failure, possibly caused by a charger malfunction.

Step 1: Try charging the smartphone with the spare charger. If the smartphone charges with the spare charger then, the malfunction is caused by the charger.

Step 2: Get a new charger with technical characteristics and functionality equivalent to the damaged one.

Step 3: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A., for repair and reuse.

3.3.2 Repairing charging failure (damaged charger cable)

In order to repair damage No 2 the following equipment is required:

- Spare charging cable
- New charging cable

Malfunction: Incapability to charge, possibly caused by charging cable malfunction.

Step 1: Try charging the smartphone with the spare charging cable. If the smartphone charges with the spare charging cable, then the malfunction is caused by the charging cable.

Step 2: Get a new charging cable with the same technical characteristics as the damaged one.

Step 3: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A., for repair and reuse.

In case the smartphone doesn't charge despite following the repair steps of sections 3.3.1 and 3.3.2., then a malfunction on the internal smartphone charging wiring may be the cause, and it will be necessary to reach a certified technician to assist with the repair.

3.3.3 Repairing Auto-pausing of Operation (overheating)

In order to repair damage No 3 the following equipment is required:

- New battery

Malfunction: Fast discharging, possibly caused by a battery malfunction.

Step 1: Disassemble the external protective case of the smartphone.

Step 2: Remove the damaged battery.

Step 3: Get a new battery with the same technical specifications as the damaged one.

Step 4: Place the new battery in the smartphone's socket; the terminal wiring connection of the battery needs to touch the terminal wiring connection of the smartphone.

Step 5: Place the external protective case back on the smartphone.

Step 6: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A., for repair and reuse.

3.3.4 Repairing rapid discharging - power drain (charger compatibility)

In order to repair damage No 4, the following equipment is required:

- New Charger

Malfunction: Fast discharging, possibly caused by charger incompatibility.

Step 1: Get a new charger, with technical specifications that meet the manufacturer's standards.

Step 2: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A., for repair and reuse.

3.3.5 Repairing slow application response (operation system-OS)

In order to repair slow application response, possibly caused by Operation System's malfunction:

Step 1: Go to "Settings"

Step 2: Choose the command “Restore factory settings”

3.3.6 Repairing slow application response

In order to repair damage No 6, the following equipment is required:

- Access to an Internet Network

Step 1: Choose the application that doesn’t respond, or is slow in responding.

Step 2: Uninstall the application

Step 3: Browse online and reinstall the application.

4. Portable Electronic Computer with Touch Screen-Tablet

4.1. General-Operation Principles

The portable electronic computer with an integrated touch screen, known as a tablet, is a new type of electronic device that in many circumstances tends to replace regular computers.

Tablets are thin and small computers with relatively large touch screens. The user interacts with the touch screen through gentle finger touches – taps and glides - on its surface and that is why tablets are considered easy to handle. Tablets use an Operation System, that is called android. Tablets provide the user the ability to install programs and applications, via internet on top of providing all the basic functions of a common computer. Like the smartphones, tablets operate with rechargeable lithium ion batteries.



Figure 1 The interior of a tablet

4.2. Indications of Malfunction-Possible Damages

The most regular malfunction indications of a tablet and the most common possible damages are mostly the same as the cellphone-smartphone malfunctions.

4.3. Repair Steps

The repair steps of the possible damages that may occur to a tablet coincide with the possible smartphone damages presented in sections 3.3.1. and 3.3.6.

In order to home-repair this device, the required equipment for personal safety is the following:

- Protective safety gloves in order to protect the hands from edgy or sharp components elements and safety goggles.
- Face mask (preferably a reusable one) in order to protect the respiratory system and prevent any dust or residues entering the body.
- Safety goggles.