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# **D4.11**

## **Demonstrator 4**

### **Configuration App**



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## 1. DOCUMENT INFORMATION

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## 2. DOCUMENT HISTORY

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Alain Pagani	06.06.2018	Delivered version	1.0

### **3. ABSTRACT**

In this deliverable, we describe the software necessary to configure the EoT Empathic Doll demonstrator. Compared to other demonstrators, in this case is only necessary to use the control mode application (Android or PC version) and the bootloader to configure and run the main application.

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## 5. INTRODUCTION

This document describes the EoT Empathic Doll demonstrator configuration application and procedures. In this case it is only necessary to use the basic configuration ecosystem developed to manage the EoT device as this demonstrator needs to fulfil several ethical restrictions that does not allow it to be connected to a wireless network during functioning.

The applications necessary to configure the app and the repository can be found in are as follows:

1. Bootloader

[https://gitlab.com/espiaran/EoT/tree/DFKI/WorkPackage\\_3/myriad/apps/bootloader](https://gitlab.com/espiaran/EoT/tree/DFKI/WorkPackage_3/myriad/apps/bootloader)

2. Pulga Control App

[https://gitlab.com/espiaran/EoT/tree/UCLM\\_FFBoard\\_mdk\\_17.04.5/WorkPackage\\_3/myriad/apps/pulga\\_control\\_app](https://gitlab.com/espiaran/EoT/tree/UCLM_FFBoard_mdk_17.04.5/WorkPackage_3/myriad/apps/pulga_control_app)

3. PC configuration application

[https://gitlab.com/espiaran/EoT/tree/UCLM\\_FFBoard\\_mdk\\_17.04.5/WorkPackage\\_3/desktop/apps/EoT\\_control\\_mode\\_java](https://gitlab.com/espiaran/EoT/tree/UCLM_FFBoard_mdk_17.04.5/WorkPackage_3/desktop/apps/EoT_control_mode_java)

4. Android configuration application

[https://gitlab.com/espiaran/EoT/tree/DFKI/WorkPackage\\_3/android/apps/control\\_app](https://gitlab.com/espiaran/EoT/tree/DFKI/WorkPackage_3/android/apps/control_app)

The reviewers will be able to access the private parts of the code on request.

## 6. SHORT DESCRIPTION OF THE DEMONSTRATOR

This demonstrator focus on the implementation of an intelligent doll capable of analysing and interacting with an infant in an emphatic way.

Two scenarios have been considered in this demonstrator targeting a usage of the interactive doll in playful situation in the first scenario and as a therapeutic tool in the second.

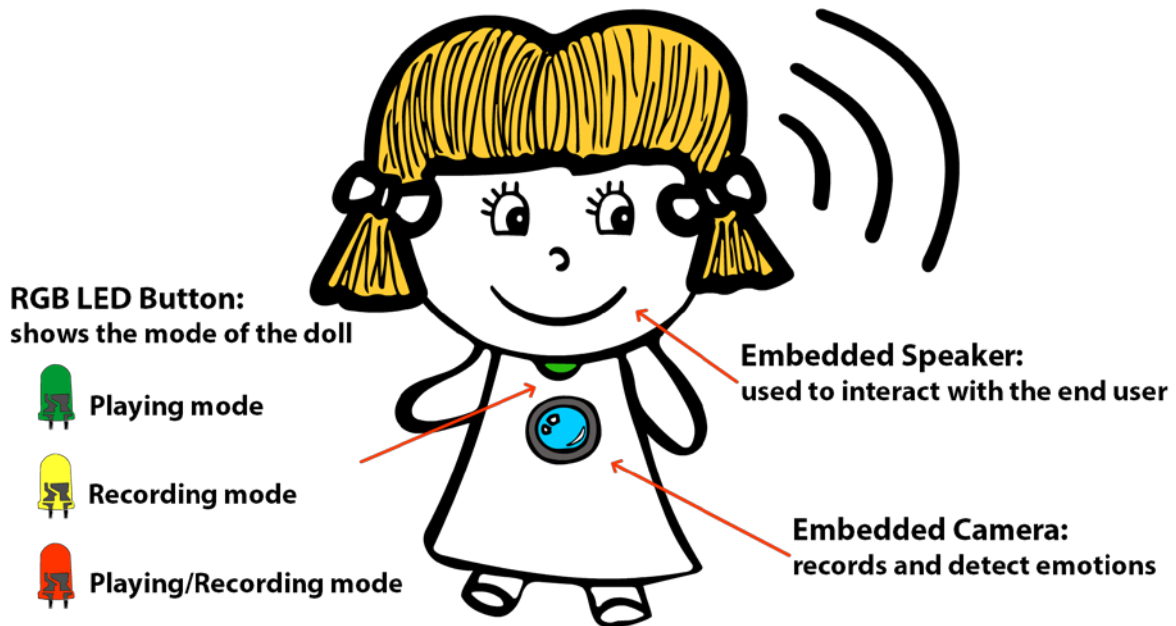


Figure 1: The Doll

The doll incorporates speakers, a camera and a backlight button to change the doll's mode. Every mode will have a different colour.

### 1. Scenario 1 – Interactive Doll – Talk to me

The doll will interact with the infant through an audio interactive feedback based on her emotional state. Based on her emotion the nViso emotion engine in the EoT platform will trigger predefined audio comments. During the playing time, a green led on the EoT platform will indicate that the doll is in its interactive analysis mode.

## **2. Scenario 2 - Therapy Doll – I can help you**

The doll will be used to monitor and record the emotional behaviour of the infant while playing with the toy. In this scenario, the doll can be used on two different modalities:

- Recording mode: in this mode the doll will passively record the emotion while the infant plays with it.
- Playing-recording mode: in this mode the doll will record the session as per previous mode and it will also provide audio interactive feedback as in the first scenario.

The recorded session will be downloadable through the Wi-Fi connection



## **7. CONFIGURATION APP SOFTWARE DESCRIPTION**

The configuration of the Empathic Doll Demonstrator is based on the basic software installation of the EoT board. This configuration includes in the EoT side the Bootloader application and the Pulga MQTT broker, whereas on the user side it will be necessary to run the MQTT Client application developed for PC or Android. Both applications can be used to configure the WiFi chip for the configuration mode, to upload and flash the Empathic Doll Demonstrator and to download the text file which contains the emotions detected during the session.

It is worth noting that in this case it has not been necessary to develop an additional configuration application since one of the critical points of the demonstrator is to remove the WiFi connectivity when the demonstrator is running due to privacy reasons.

## 8. CONFIGURATION APP SOFTWARE DOCUMENTATION

### 1. Bootloader + Pulga Control App

This module was described in detail in deliverable D3.3.

In general, the Bootloader is used either to boot into 'control mode' or to load an app, which the user has previously installed on the EoT device, selecting what to boot considering the position of a DIP switch on the device. In this case the Bootloader is used to select between the Pulga Control App or the Empathic Doll Demonstrator.

### 2. PC configuration application

This module was described in detail in deliverable D3.1.

The PC configuration application can be used to configure the WiFi connection of the device, to upload the Empathic Doll Demonstrator executable or to download the emotions text file when the doll is configured to run in configuration mode. The following picture shows a screenshot of the main configuration window:

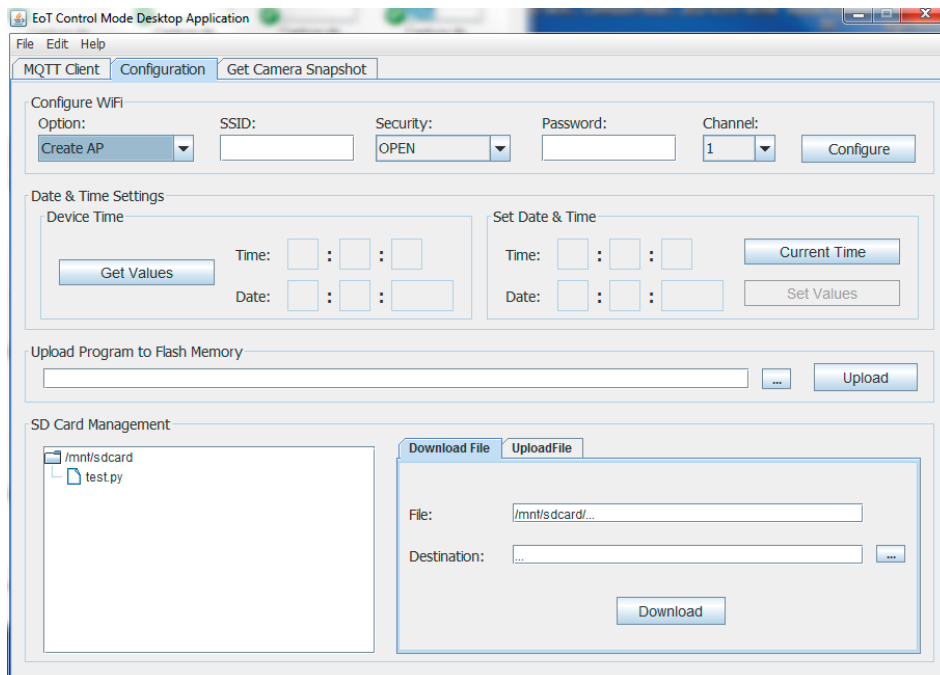


Figure 2: Pulga Main configuration window

When uploading the demonstrator ELF file, the following output will be obtained by the application:

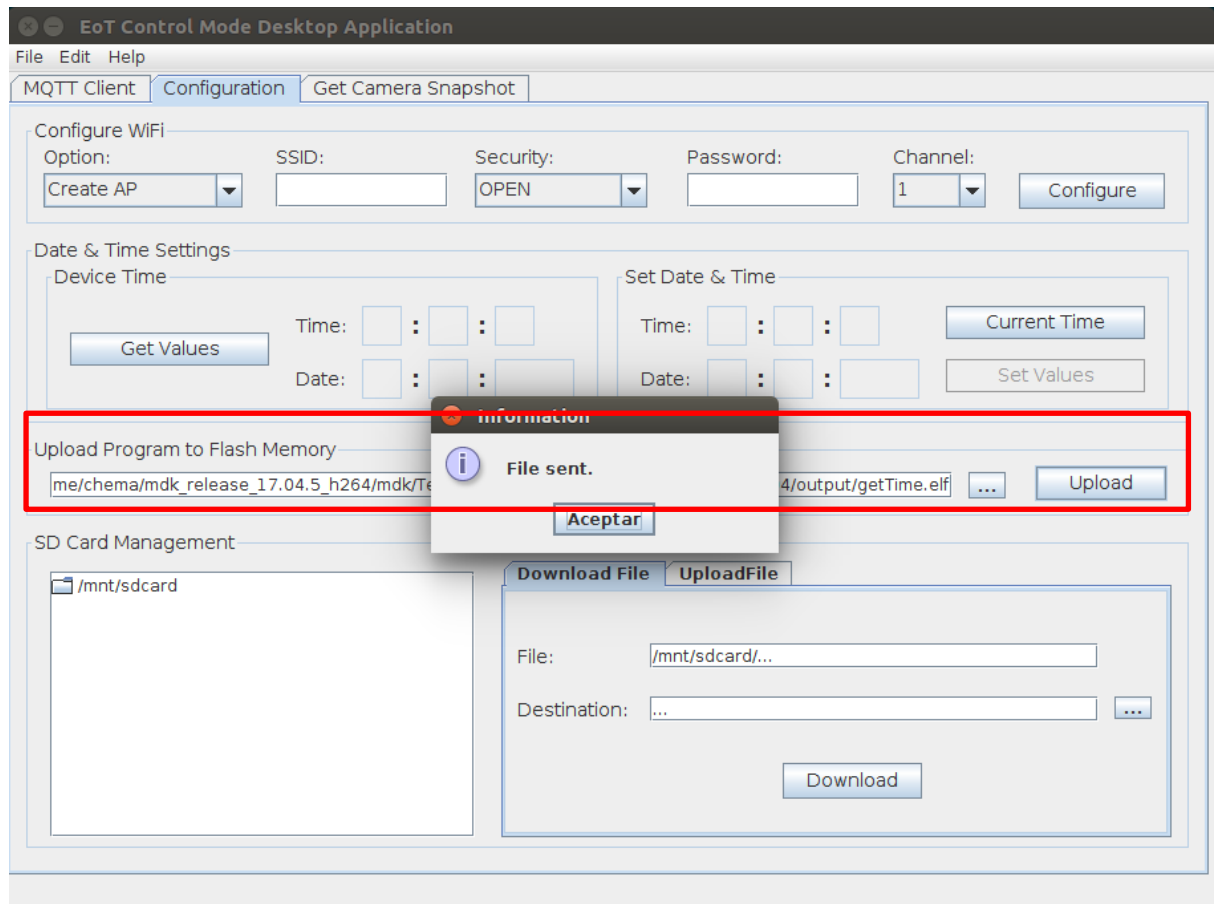


Figure 3: Flashing app on the EoT device

### 3. Android configuration application

This module was described in detail in deliverable D3.2.

Similar to the PC configuration application, the Android app can be used to configure the WiFi connection, to upload the Demonstrator ELF file or to download the emotions text. The following screenshots shows the App panel and the process of uploading an EoT application to the EoT device. It consists of three main steps.

First, the user selects the "Select EoT Application" button on the app.



Figure 4: Android app flashing windows

Afterwards the user selects an EoT application ELF file stored on the device.

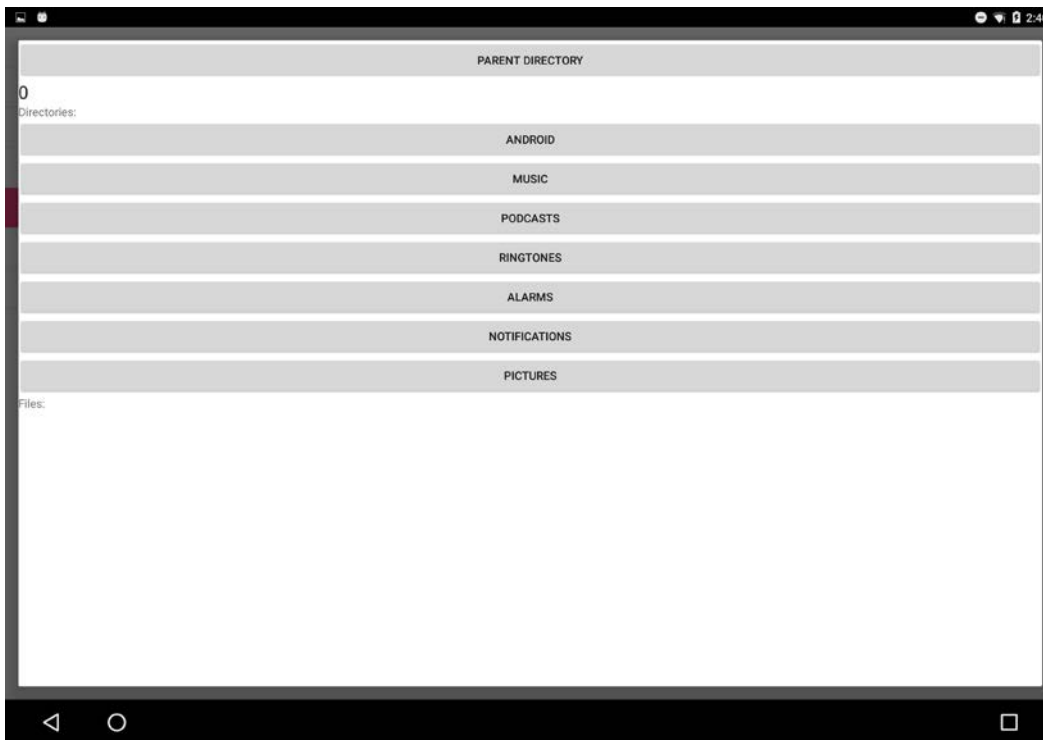


Figure 5: Selecting an ELF file

Finally, the user pushes the “upload application” button to initiate the upload process.



Figure 6: Last step of flashing an app

## **9. CONCLUSIONS**

This deliverable describes the configuration applications and the basic process of installing the Empathic Doll Demonstrator using these apps. Since one of the main requirements of the demonstrator is to maintain the privacy of the child removing any wireless connection, it is not possible to configure it when the demo application is running, only when the device is in the basic setup mode.

**- End of document -**