

# Improving Cherry Robot verbal communication

Non-profit association PRIMA



*Cherry Project : Fighting against isolation*

## The need to take care of children while they are at hospital:

Children who need care in hospitals can stay for several days alone in their bedroom, without the possibility to do anything else than wait or watch TV. That is why one day Prima decided to make a robot which would be able to interact with children. By making available a robot called Cherry for hospitalized children, non-profit association Prima want to reduce the feeling of isolation of those children. Such as Jarvis, Tony STARK's digital assistant, the Cherry Robot aims at occupying children during their convalescence by playing with them, chatting and

helping caregivers in therapeutic education.

## Three goals

1) *Entertaining children:* The cherry robot can make the time the child spends in a hospital more enjoyable and shorter than before.

2) *Cherry is connected* which allows children to keep in touch with their social sphere and feel connected to the outside world.

3) *Thanks to this one-to-one relationship with the child, Cherry can assist the nursing staff by sensitizing the child to the behaviour which is required in their situation thus opening the way to a new form of therapeutic education.*

## HOW DOES IT WORK ?

### Technical features overview

The whole is brought to life thanks to an Odroid card, a microcontroller which is about the same one than an Arduino microcontroller

***"PRIMA WAS CREATED IN 2004 AND AIMS AT REDUCING THE ISOLATION OF CHILDREN, HANDICAPPED PERSONS OR TEENAGERS THANKS TO AVAILABLE DIGITAL SOLUTIONS SUCH AS COMPUTERS, LAPTOP OR ROBOTS"***

### The Hardware: a complete 3d-printed body animated by a microcontroller

The body of the robot was entirely designed by researchers from INRIA (« institut national de recherches en informatique et automatique » - bordeaux, Fr) and shared as an open-source project. The high part of the body is used for the « cherry project » which allows a kind of non-verbal communication.

### The Software: Python language can make cherry robot alive

A python server is installed on the robot which allows implementation of new functions and possibilities. The body of the project take place here. Even built by the work of other developers, the project aims at adding a source code to the

## An open-source project

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The Cherry project is an open-source project: it means that each developer or each person which is passionate about robotics can make a contribution by proposing a code via the GitHub repository (<https://github.com/cherry-project/primitivews>) or by contacting non-profit association Prima directly at the email address following this website :<http://asso-Prima.org/wordpress/contacts>

Making a complete open-source robot amounts to build a robot which looks like its developers, in other words a multifunctional robot built by passionate developers.

## A partnership

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Many actors are collaborating on this project. Among them are:

**Sogeti**, the main sponsor, in the person of M.Jerome Guichard (the technical manager)

**Prima association**, the initiator of the project in the person of M.Thierry Blanche, the project manager and member of the association

**Inria**, [national institute of automatic and computing research]

**Bordeaux INP**, which sends students to work on the project every year



server to add new functions to the robot.

## Improving verbal communication

### **Oral feedback from cherry**

By Integrating a speech-to-text module, Cherry is able to answer questions of a child about general information such as the news or the weather for example. He can react to the request of the children for example to play or just chat.

### **Vocal recognition: cherry can listen to you**

By using a speech-to-text module, Cherry listens to the child and transcribes what they are saying.

### **Chatting with children: a key point**

It is abundantly clear that chatting is important. Faced with the difficulties of implementing the Tony Stark's Jarvis, the choice has been made to implement usage scenarios one by one. In my case, I have to implement the basis of verbal communication and allow Cherry to answer to several questions about football.

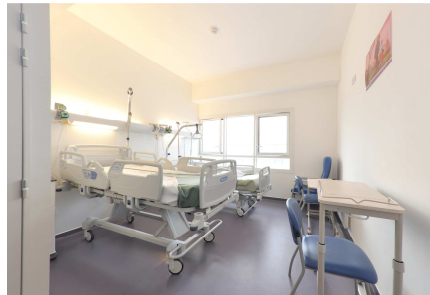
## **The End**

### **The End of the project**

A first report will be produced 31/03/2017  
The final report will be produced 27/04/2017 and an oral presentation is planned around 02/05/2017

### **The End of the Cherry Project**

The first usability test will be passed in 2018 and following these tests, the first cherry robots will be available for hospitalized children.



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