# Internet of Things project

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1   Introduction

This Internet of Things application is developed in order to help parents to monitor their baby's room, integrating a sensor network and a cloud application; all these actions can be performed remotely using the client java application.
Using this application the parents can observe their child through a camera installed above the baby cot, moreover they can regulate the light intensity and switch on/off the music.

2   Architecture

The following image shows the architecture of the application:
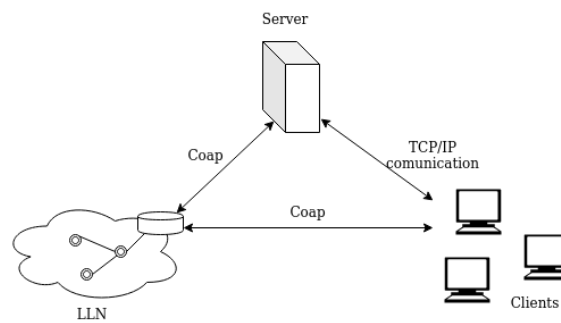
2.1   Server

The server was developed in java. Its main function are:

- To receive registration request from nodes and keeping track of them.

- To receive connection request from the clients and handle multithread comunications.

2.2   Client

This module is developed in java and provide users a command line interface, thanks to which they can interact with other modules (more clients can interact at the same time with the Iot app). In a real scenario this part of the architecture should be a mobile application, which is developed to run on Android and IOs devices (both smartphone and tablet).
The following operations can be executed from the users:

- Swith on/off the camera

- Read light sensor

- Switch off/low/medium/high the bulb

- Read the status of music (on/off)

- Swith on/off the music

- Regulate volume of the music

2.3   Nodes

This module is related to the low power and lossy network. They are written in C programming language and they emulated in cooja simulator.
There are 4 types of nodes:

- rpl border router

- light node

- music node

- camera node

A node starts to send a registration request to the server and then it waits for the requests from the clients, providing some methods by which the client can interact with the resources present on the nodes.