CMake: A very simple introduction

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Outline

1. What is CMake ?
2. A case study
   - CMakeList explication

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What is CMake ?

CMake

CMake is a cross-platform, open-source build system. This tool will allow you to test, compile and create packages of your source code.

Run CMake

In order to run a CMake projet we do:

- mkdir build
- cd build
- cmake ..
- make

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A case study

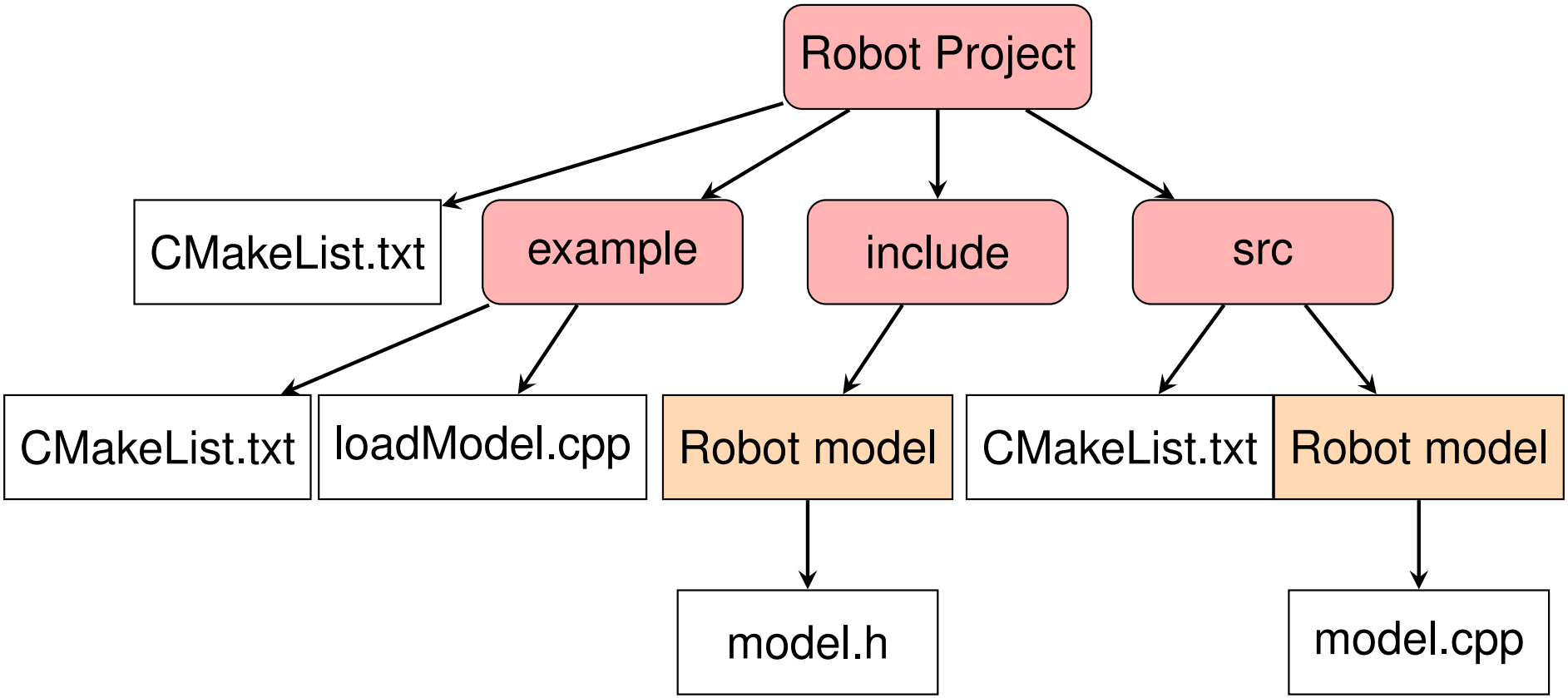

Figure: A classical robotic C++ project structure

Illustrative case

Project organization

The main project is called ”robot project”, in which we create sub-directory such as ”example”,”include”,”src” in order to keep our codes modular.

CMakeList

The CMakeList file is very important of several useful design patters for CMake. In this file we precise with ”flags” to let cmake know how to build this project.

Illustrative case

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First CMakeList in ”Robot Project”

Explication

We explain the flags written in CMakeList in following:

- cmake_minimum_require(VERSION 3.11) *Required version*
- project(Robot6R) *Name of this project*
- find_package(cartin REQUIRED COMPONENTS roscpp rospy .....) *Find the external package used in this project*
- include_directories(include ${CATKIN_INCLUDE_DIRS ...) *Include the header of external package*
- ADD_SUBDIRECTORY(examples src include) *add other sub-directory to project*

CMakeList in ”src”

Explication

In src, we write our own library

- set(HEADER_LIST ”give the path to the project include directory”) *In order to include our header to the src*
- add_linbrary(robot6R_library) *Name of this package or library*
- find_package(cartin REQUIRED COMPONENTS roscpp rospy .....) *Find the external package used in this project*
- include_directories(include $ {CATKIN_INCLUDE_DIRS ...) *Include the header of external package*
- ADD_SUBDIRECTORY(examples src include) *add other sub-directory to project*