

Introduction

The aim of this project is the development of a system, which has to be installed on RoboCup player's on-board PC, which will let them recognise the sound of the whistle during a competition.

Each robot will be able to hear the whistle and its length, and to use these elements to understand which meaning the whistle has got in the game context, acting according to the appropriate situation (foul, expulsion, goal, end of the match).

The system, which will be called WR in this document, is based on a spectrum analyser followed by a neural output stage.

Input of WR is, obviously, the integrated microphone of the robot's on-board PC; output is a message sent by WR to the main controlling process so that it understands when the whistle starts or stops.

The system is integrated with a learning tool used to set WR's parameters starting from a brief recorded sample of whistle and of a background noise.

Chapter 1 describes the system architecture, project choices and algorithms used in the implementation.

Chapter 2 describes the learning tool.

Chapter 3 describes the source code.