

# The MauaBots Team for IEEE Very Small Robot Soccer Competition

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**Abstract**— This paper describes the development of the system and the robots by the MauaBots team, from “Instituto Mauá de Tecnologia” in order to participate in the IEEE Very Small Robot Soccer category of LARC (Latin American Robotics Competition) in 2010.

## I. INTRODUCTION

THE system of robot soccer is being increasingly used in academic research because it combines various technologies of engineering and computing at the same time it incorporates an element of challenge that results in an attractive for students and consequently the learning.

This platform gives support the application of many techniques of artificial intelligence and control of processes and can be used to realize a lot of related researches [1] – [5]. One feature that deserves mention is the interaction with the environment, which makes that the algorithms require great robustness.

The structure of the implementation of soccer robots is illustrated in Figure 1 that presents the following characteristics:

- there is a camera positioned above the field that collects images of the field of play; these images are sent to a computer that identifies the position of robots (including robots opponents) and the ball (which should be a orange golf ball);
- the robots and ball positions are sent to a program of strategy that alone decides which attitude that each of the robots should take, i.e., isn't a human who decides what the robot should do, but the strategy is developed by the researcher;
- the commands produced by strategy program are sent to robots by a system of radio frequency;
- the robots are made by a system receiver that converts the radio waves into electrical impulses for the motors that drive the robots, these may still have a system of kick.

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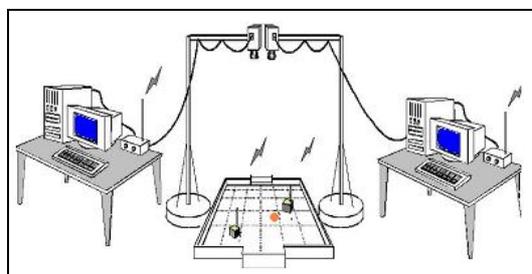


Fig. 1. Structure for implementation of robot soccer.

The students working in the research project “Development of Autonomous Robots” from “Instituto Mauá de Tecnologia” participate at the Very Small Robot Soccer competition since 2003 and have competed in four events. At the last participation the robots used are presented at Figure 2.



Fig. 2. Robot soccer players from Very Small Category – 2006 Team.

Only one MauaBot team will be registered in 2010 Very Small Robot Soccer complete competition. However, the same team has two groups of three robots. The first them consists of an improved version of the 2006 Team (Figure 2). The following improvements were made in robots:

- maintenance in the electronic circuit (PCB);
- replacement of the power (batteries) for another more powerful, modern and durable;
- replacement and adjustment in the external structure (cover and uniform).

The resulting robots are shown in Figure 3. This is the reserve team of MauaBots. These robots only will be used in 2010 if we have any problem with the main robots team or the design of them can not be completed in time before the date of competition.



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