**Proposal outline for Humanoid robot-soccer**

This is a sample outline of what your proposal for the humanoid-soccer competition should look like.

1. Introduction

**Objective**

What the objective of this competition is all about for you. Short description as to why you wanted to participate in this game, what the educational value would be to you, what this can contribute to the university (I think universities would like this one very much).

1. Design specification

In this part you must include:

* 1. Electrical and electronic design
  2. Mechanical design
  3. Software and AI

You will need to explain what kind of components you would use, what parts are necessary, and all other aspects on all the above stated 3-sections.

Plan very well as much as you can, because you design dictates what components you would use and will be purchased for your team.

Some of the things you should consider will be:

* + 1. If your robot’s competition power will be phone based or pc based.
    2. The camera system you will use, including the video processing and transmission system. For example, if you choose a pc based system, you might need to have a wireless camera.
    3. Pan/tilt mechanism – most camera have limited line of sight, therefore you might need to have a pan and tilt mechanism like the human neck to navigate the playing field using your camera. Some suggestion would be servo based system like one we have in iCog.
    4. Important sensors like digital compass or gyroscope, or accelerometer – you might need them for turning your robot in some direction.
    5. How would your program communicate with the robot? Remember Robosapien is originally remote controlled based, so if you want to automate your robot, you must have some way of controlling the robot.
    6. Micro-controllers you might need for different purposes like handling pan/tilt servo motors, handling communication between the robot and your processing code.
    7. Power source for your robot, additional electronic materials you use, for your camera system. Consider also where the power source should be put on the robot.
    8. Where you would place all the components you need on the robot and on the ground outside playing field.

1. Implementation strategy (How do you propose to work on your design and other tasks)
   1. Material purchasing - how you will participate and plan to acquire the components you need for the competition. Consider the university, sponsors, and other options you have in mind.
   2. Team management tools and techniques – how your team will manage itself towards achieving its goal. How the team will handle the tasks, divides and shares power and responsibilities, handles team members, the materials it acquires and others for the coming 3-5 months.
   3. Winning strategy – how your team proposes or thinks would win the competition in the given time frame.
2. SWOT

In this section, please explain the following briefly about your team.

* 1. Team strength - things you consider strong of your team. It could be members, resources, etc…
  2. Weakness – could be incomplete team members, working time, or others.
  3. Surrounding opportunity – the opportunities you have like the help of university, supporting teachers, members from different fields of study, and so on.
  4. General threat – things you consider that have possible negative impact on your participation on the game, winning chance, or others.

1. Cost breakdown

From your design specification and implementation strategy, put a rough estimate of the cost for the overall game. You can use “Amazon Based” price for components to be purchased from abroad. For those that are available in our country, put your rough guess.

It will be better if item name, quantity, price per quantity, and total quantity, and overall price be put in a tabular form for ease of read.

1. Time table

A rough schedule for the match considering the four-month competition deadline set.

1. Future goal

In this section, please briefly describe what your team plans after winning the competition (or after participation). May be, like, your team may stay organized and together and would like to participate in other coming competitions, play in the next round robot-soccer with better performance, work with iCog-Labs in other related tasks, or any other future plans.

For more design information, you might need to look on to the 2005 Robosapien football competition. There are many PDF files on the internet regarding what they did to play robot-soccer using Robosapien with a brief description of the internals of Robosapien. What they used could be a good starting point for your research. You can also contact iCog –Labs for further information.

A research on robot-soccer will also be helpful. It will give you insights on the basic materials needed for most robot soccer competitions. It will give you a brief exposure to some of the common rules of robot-soccer.

Many hackings have been done of Robosapien communicate with Robosapien other than the remote control, like from other pc/phone. Some of these include, a microcontroller sending IR signals directly to the robot by hacking the IR signal wire going into the robot. You can search for these stuffs on the internet or you can contact iCog labs so we would share what we have used to achieve that.

If you have any questions on any of the things stated above or others, please communicate with us on slack group we have created on our last meeting.