# COMP 329 2015 Assignment 02

**Deadline: Friday 18th December 2014, 13:00**

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This assessment covers the development in Jason of a multi-agent system for a 'search & rescue' mission. The assessment contributes for 50% to the final grade.

This is the detailed specification of the assignment:

- The multi-agent system consists of two Jason agents: a scout and a doctor.
- The scout agent communicates (via BlueTooth) with an NXT robot placed in an arena. The doctor will request the scout to start the search for victims.
- The robot will start from a known location either position based e.g. an (x, y) coordinate of (20cm, 20cm) or occupancy grid based e.g. the robot starts at the grid coordinate (x, y) of (1,1). The arena will have a small number of obstacles (between 2 and 4) and of victims (between 2 and 4), which will be placed at random locations. Victims will be designated through colored A4 papers placed on the floor of the arena.
- Different colors indicate different levels of danger victims are subjected to: red = very urgent, blue = urgent, green = not urgent
- The aim of the scout agent is to locate the victims and communicate their positions to the doctor agent.
- The aim of the doctor is to decide which victim has priority in a rescue action. It displays in real time on screen a priority ranking of the different victims found by the scout.

The above is the basic assignment. Full marks can be obtained by a good solution to the above problem.

For **additional credit** you can, optionally, provide a solution to the following extension of the assignment:

- Once the scout agent believes that it has completely searched the arena, it passes this information to the doctor.
- The doctor then passes the scout the coordinates of the most urgent victim. If two or more victims are jointly the most urgent, the doctor passes the scout the coordinates of one of them.
- The scout then moves to the location of this most urgent victim.

You will be evaluated as follow:

- By the deadline stated above, you should hand in to the student office a printout of the code of your program, together with the peer-evaluation form for each member of the group, and the usual plagiarism forms.

  Groups may optionally, in addition, submit a video showing a working solution. This video must be unedited[1] and no more than 5 minutes long. The video must be uploaded to YouTube and the URL included in a comment on the first page of the code of the program.
- Each group will be scheduled a time on the afternoon of Wednesday 16th December to demonstrate their solution. Partial marks will be awarded for partial solutions.

  Consider submitting a video as insurance in case there are problems with the demonstration.
- The code will be assessed in terms of elegance of solution and correctness. It will be worth 30% of the mark for this assignment.
- Finally, the log that you have kept to illustrate the development of your solution for the all duration of the assignment (Weeks 8 to 12) will contribute 20% of the mark for this assignment.
- Individual marks will be based on the team mark adjusted according to the peer-evaluation form.

[1] This means that that the video has to be one continuous shot from the same camera — zooming is ok, but cutting between shots is not ok.