Mine Sweeper

A mine sweeper robot is designed to roam through a mine field, locate and detonate the mines without damaging the robot. The mine field in this competition will be four feet by four feet with four inch high sides. The floor of the mine field is white styrofoam. The mines themselves are mouse traps that have been modified so that they only close half way.

Construction:

Any wheeled or tracked robot will work. The robot must be able to roam through the 4x4 area and locate the mines. This can be done simply by random movements and hope that the robot hits the trigger of the mines, or the robot can be programmed to actively search for the mines. IR sensors or line tracking sensors would work for finding the mines. (figure 1)

Then, of course, there is the task of actually triggering the mine without damaging the robot. This can be done by allowing the wheels of the robot to attempt to strike the trigger, or with a mechanism that is lowered onto the mine.

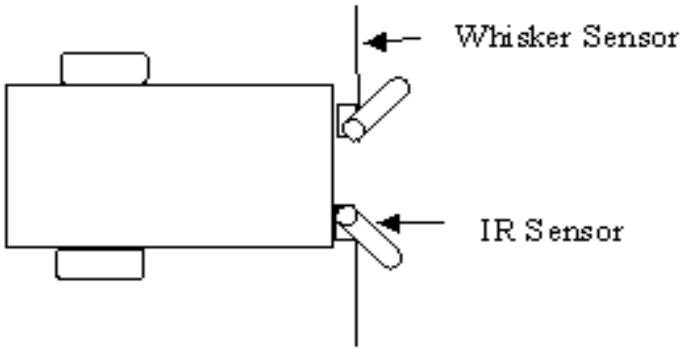

Figure 1. A top view showing approximately 180 degrees between the forward Whisker Sensors for turning at the walls. IR sensors could be used to locate the mines.

Description and Rules

The competition will be to see which robot can detonate the most mines. Each robot will have three two minute trials. The total number of mines from each trial will be added for a final score. If a robot becomes disabled prior to the two minutes ending, that trial is over.