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(26) A mobile field robot for weed control in maize crops

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The aim of this project is to obtain an autonomous vehicle able to move in a maize field, obtaining information based on position and georeference systems, artificial vision systems and odometry. This vehicle must tow a second module of tools that will identify crop and weeds and a third module will proceed to the mechanical elimination of undesirable plants.The first phase of this work has been a simulation where different strategies of navigation have been tested. We are also working at the optimization of the weed-crop discrimination system based on vision and image processing through morphological descriptors. The weeding module will consist in vertical axe rotary brushes that will eliminate weeds in a selective way. This project is included in organic and precision agriculture looking for an optimal use of resources and a reduction of the environmental impact of weed control practices. It is expected to have an operative field prototype at the end of 2008.

Key words: Autonomous navigation, machine-vision, mechanical weeding.