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PDA project

The goal of this project is to create a robot interface that allows a user to guide and control a robot to perform some task. The assumption is that, although the user may be a domain expert in how the task should be done, he is not an expert in robotics. During the actual robot use, he should focus on the task to be done rather than worrying about the robot or the interaction modality. To address this goal, we have been investigating the use of hand-drawn route maps, in which the user sketches an approximate representation of the environment and then sketches the desired robot trajectory with respect to that environment. The objective in the sketch interface is to extract spatial information about the map and a qualitative path through the landmarks drawn on the sketch. This information is used to build a task representation for the robot, which operates as a semiautonomous vehicle. The stylus interface of the PDA allows the user to sketch a map much as you would on paper. The PDA captures the string of (x,y) coordinates sketched on the screen, which forms a digital representation suitable for processing. The user first draws a representation of the environment by sketching the approximate boundary of each object. During the sketching process, a delimiter is included to separate the string of coordinates for each object in the environment. After all of the environment objects have been drawn, another delimiter is included to indicate the start of the robot trajectory, and the user sketches the desired path of the robot, relative to the sketched environment.