

Search and Rescue Robot

:: Overview

Lilo and Stitch use a “differential drive” by varying the speeds between the left and right wheels. Instead of having a separate steering column like the one found in cars, the “differential drive” in robots provides a greater mobility. Lilo and Stitch can spin on a dime to allow them to face any angle and this gives differential drive robots an edge in tight spaces, such as this disaster arena



:: Challenges

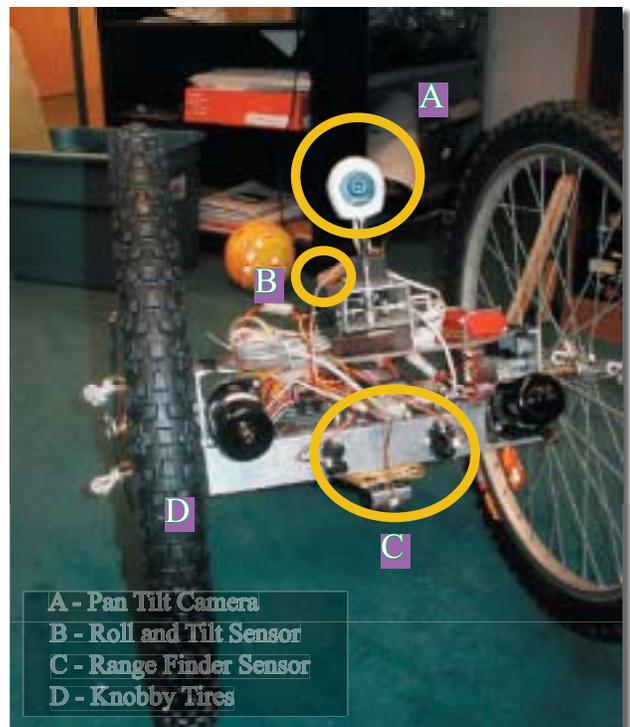
- Stability and mobility over rough terrain
- Differential robots fail in attempt to go over large obstacles and climb up steep inclines

:: Solutions

- Use of a lightweight tail to act as a castor, giving the robot a third point of contact to the ground
- Use of sensors to constantly tell the operator and robot its orientation in 3-D space relative to the earth

:: Components and Characteristics

- Knobby tires in order to help them gain traction
- Combined with the large tail which allows them to climb over small to moderate obstacles
- Pan tilt camera provides visibility of 360 degrees around the robot
- Pan tilt camera can be adjusted to view of 180 degrees up and down from the robot relative to the tail



The major components of Lilo and Stitch