ASME STUDENT DESIGN COMPETITION:
The Mine Sweeper

CEC Design Team:

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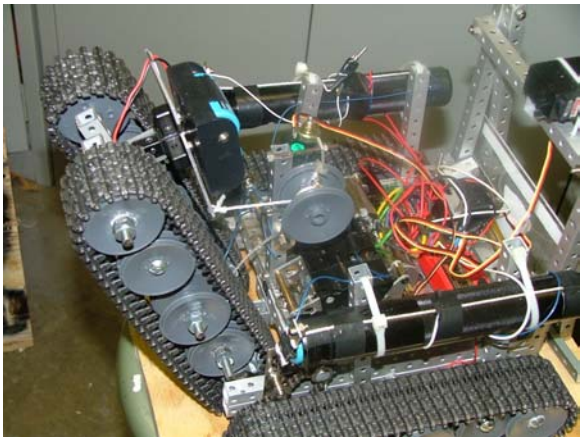
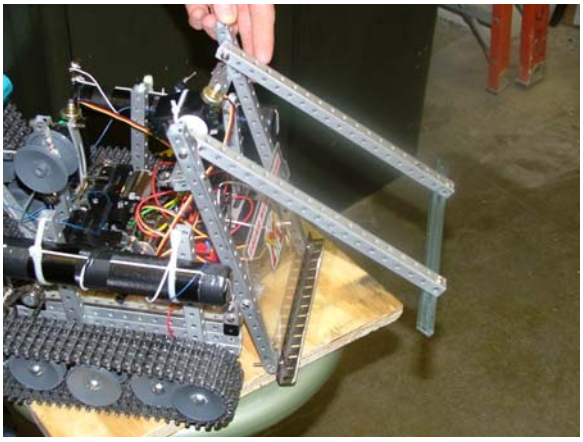
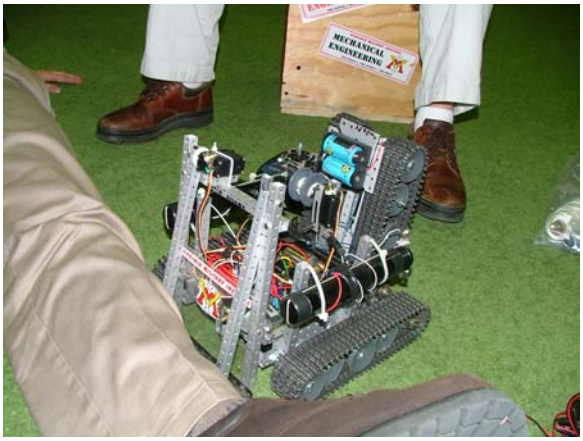
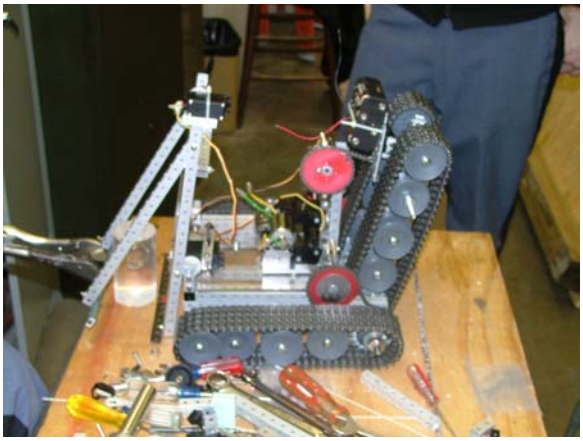
This years ASME Student Design Competition consisted of designing and building a vehicle that was capable of maneuvering a minefield and climbing two three and a half and one seven inch wall, retrieving six simulated mines and then placing them in a holding area within three minutes.

Using a completely original design the design team pieced together parts available to us to construct the robot. The designed robot was driven on two sets of treads. The first set were the main driving treads that stayed in contact with the ground at all times. The second set were able to rotate up and down at the front of the robot, making it possible for the robot to gain traction on the wall and aid in getting over the walls. For mine retrieval the robot used a claw that scooped the mine onto a small shelf and lifted it off the minefield surface. With only a few changes to the design along the way, the completed robot was almost exactly as originally designed. For control of the robot, the team used the electrical expertise of the Electrical Engineering department. A six channel remote control and receiver set was ordered for operation of the robot, and the Electrical Engineering department designed and custom built a circuit board to control the movements of the robot. The Electrical Engineering department also assisted in wiring the robot.

In test runs prior to the competition, the design functioned very well mechanically just as designed. The winning team incorporated a very similar design to ours for getting over the walls. Our claw design was unique at the competition, as no other team used anything similar.