

ROLLING THUNDER Team 1511

2011 Robot Penfield, NY

Thunderous Prime
& Vertical Climb



Arm:

- ◆ Folding arm that auto unfolds and locks
- ◆ 330° rotational arm
- ◆ Non-counterbalance design
 - ◆ 5ft arm
 - ◆ Dual Gear Reduction to use low powered motors



Mini-Bot:

- ◆ Can Climb pole
- ◆ Goes up in 1 second

Deplorer:

- ◆ Deploys Mini-Bot using drawer method
- ◆ Aligns using Dust-pan shaped mechanism

Capabilities:

- ◆ Can score on all pegs
- ◆ Can pick tubes up on both sides

Cool Features:

- ◆ Custom made and designed lights are used to signal for tubes and let us know if we have the tube
- ◆ Made from milled recycled compact disks

Manipulator:

- ◆ 2 motor drive
- ◆ Serpentine belt drive for both sets of wheels
- ◆ Can collect, score, and rotate game pieces in the air
- ◆ Symmetric design
- ◆ Can Collect of ground on both sides

General:

- ◆ CAD-tested parts are designed for ruggedness and strength under the toughest of impacts
- ◆ Riveted and welded parts allow for a light, fast robot frame that maintains the strength of classic bolts

Programing:

- ◆ Sensors used to sense where the tube is in the gripper to find the "sweet spot" in the gripper
- ◆ Preset positions allow us to move the arm fast and accurately
- ◆ Special programing makes sure that we are within the 80" cylinder

Autonomous Mode:

- ◆ Place uber tube anywhere
- ◆ Follow tape

Control Box:

- ◆ Custom control box
- ◆ Custom circuit to emulate a fourth joystick
- ◆ Custom circuitry allows us to easily run our signal light
- ◆ Control box features a clear bottom so that we can show off our Circuitry
- ◆ Number pad to select a variety of autonomous modes



Drivetrain:

- ◆ 6 wheel design
- ◆ 2 8in traction wheels, 4 8in omni wheels
- ◆ Dual motor Chain drive

Electrical:

- ◆ Non-contacting sensors (no breaking)
- ◆ Redundant encoders for the arm (in case one breaks)