Control Award Content Sheet

Team # 9774	Team Name: Nano Ninjas

Autonomous objectives: Set ResQ Beacon, Place two preloaded climbers in the shelter, Park on near or far mountain mid-zone

Sensors used:

Color Sensor – used for reliable beacon color state detection
Light sensor – used for detection and alignment to white navigational aid line
Ultrasonic Sensor – measure distance to beacon and detect objects in path
Motor encoders – measure distance travelled
Touch sensor – detect when debris scoop contains hits the back wall of the robot
Nav sensor - Navigation sensor used to accurately direct the robot based on its location relative to other objects in the field
IMU (Inertial Measurement Unit) – used for driving straight and control turns

Key algorithms:

Navigation from start to beacon – use combination of IMU, light, ultra-sonic and motor encoders to reliably navigation to the beacon
Beacon state detection – use color sensors to check both color states and avoid false detection and pressing wrong button

Driver controlled enhancements:

Automatic debris scoop full detection and signal to operator.
Motor feedback algorithm to minimize slippage while climbing mountain.
Debris dumper and Climber dumber arm control system

Engineering notebook references:

Feature	Notebook Pages
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