Design Goal:

A general-purpose lawn-care machinery that showcases a weed control function.

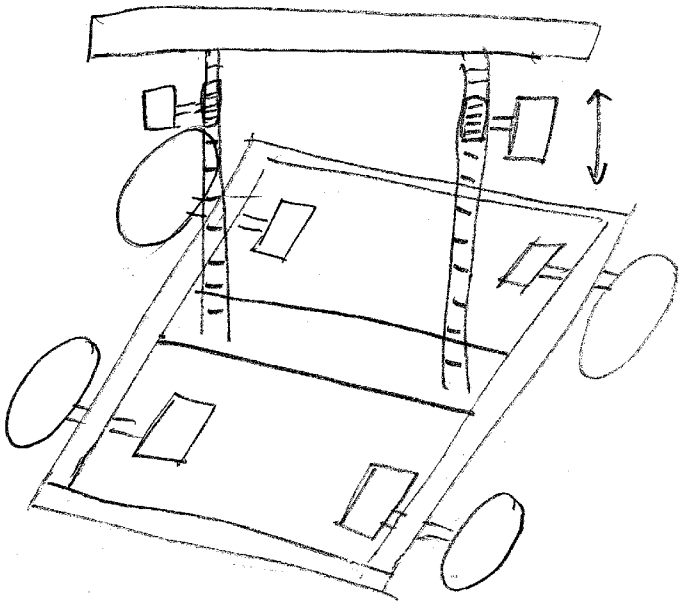
Important Attributes:

1. Spot treatment using the least amt. of herbicides
2. Minimize spray drift.
3. Use lightweight and environmentally friendly materials
4. Build to last
5. Build to adapt for changes
6. Energy efficient
7. Use renewable energy

Design Solutions:

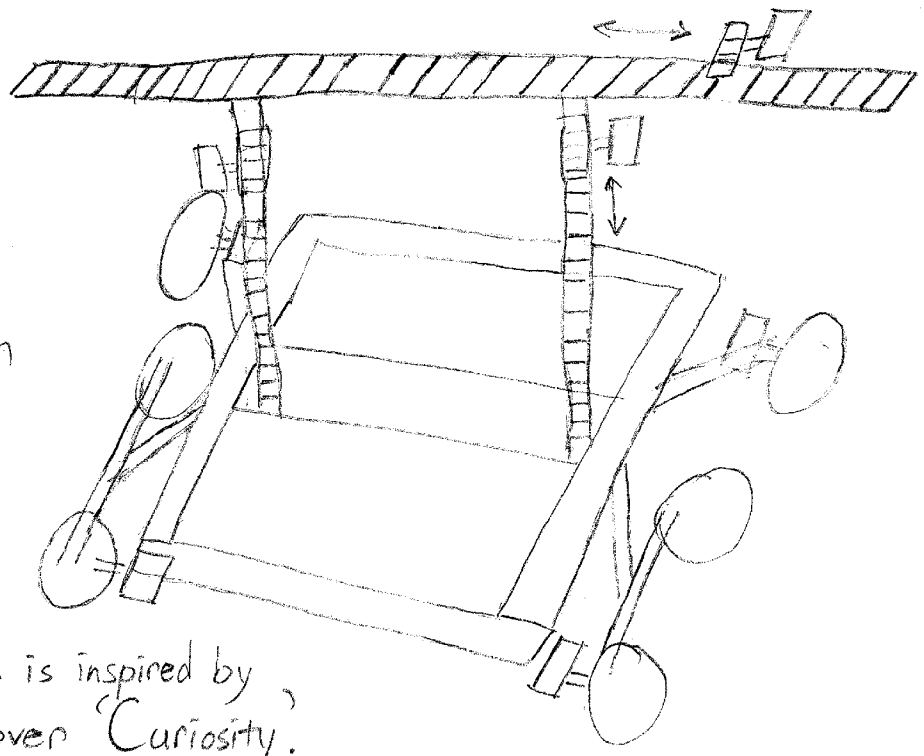
1. Camera to identify and locate the target, use GPS to label the weed so that we don't reapply the same spot twice
2. Sensor to control the boom height and use shields around the spray nozzle.
3. Run Eco-Materials adviser
4. Sturdy frame and prevent rollover by correctly positioning the center of gravity
5. Take modular design approach, change/upgrade one module instead of entire robot
6. Reduce travel distance to save energy, search by camera, rather than by wheels
7. Use solar energy to recharge batteries
8. High ground clearance and special wheel configuration for different terrains

Chassis and Elevation Design

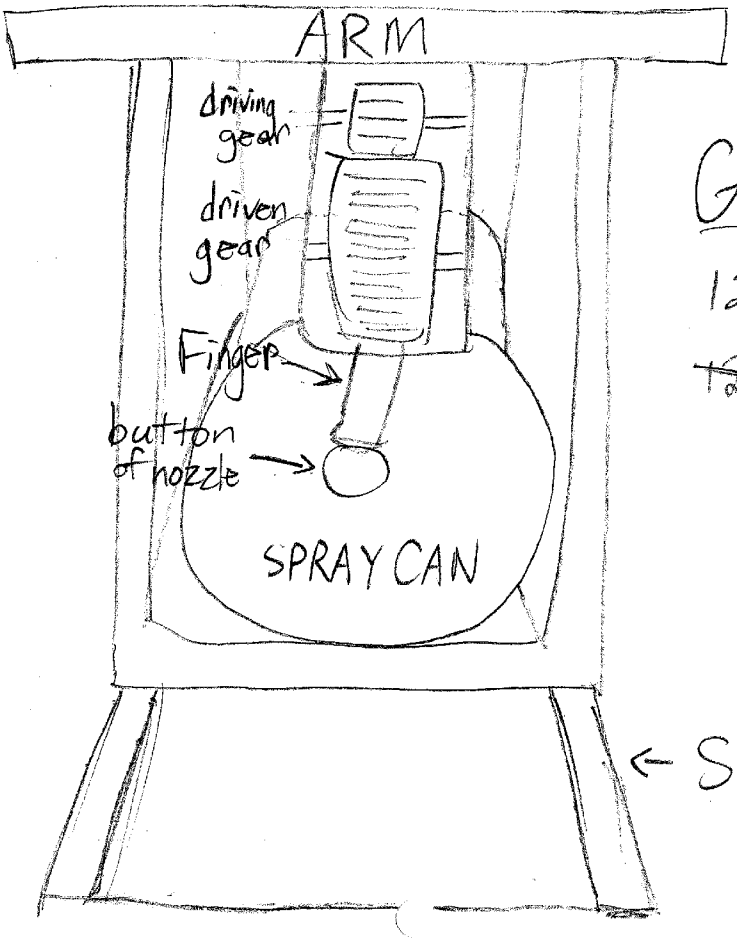


Improved Design

1. High ground clearance
2. Six Wheel Configuration
3. Linear Slide for lateral movement



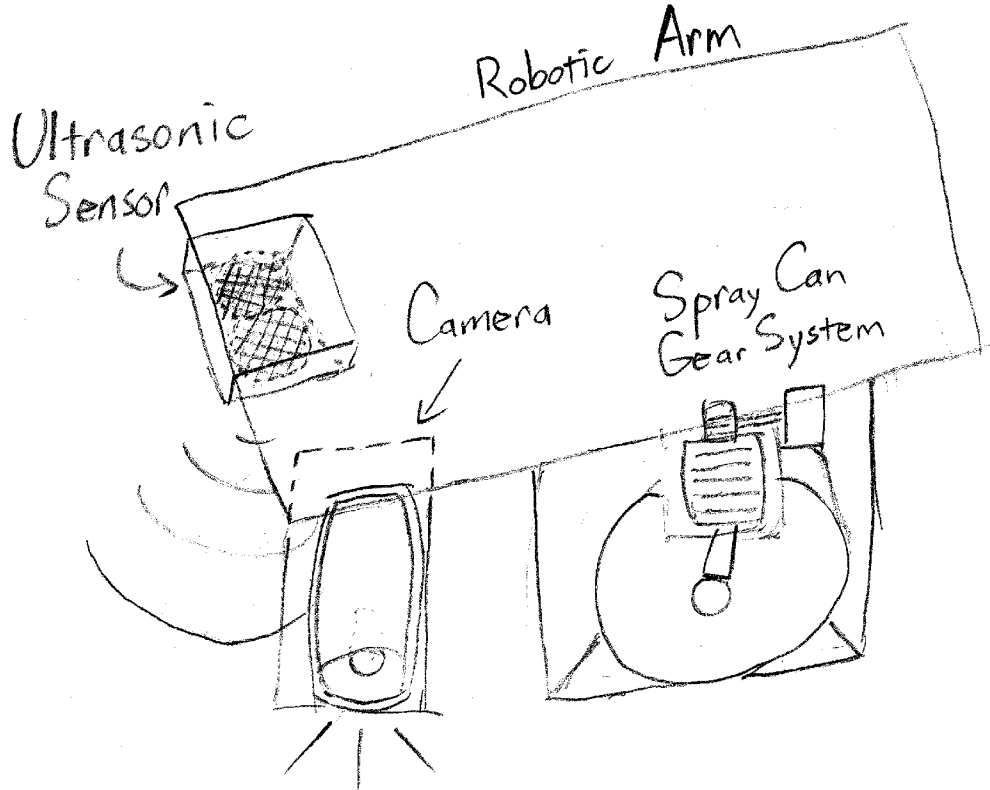
This chassis is inspired by the Mars rover 'Curiosity'.



Gear ratio

12:60 = 1:5

~~12:84~~



Application Module