



Picking Enhancement Rover for Careful Harvesting

Orchard Picking and Pruning Machine

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Problem

To effectively make a new design, several points need to be addressed:

- Leveling
- Picker Positioning
- Fruit bin management
- Transportation of fruit



Specifications

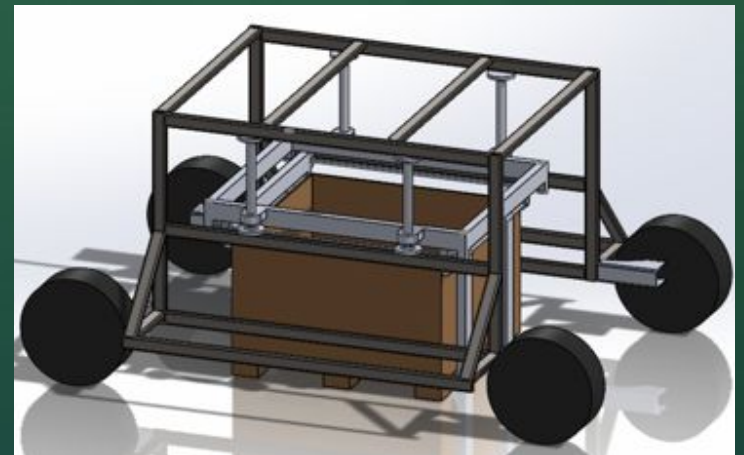
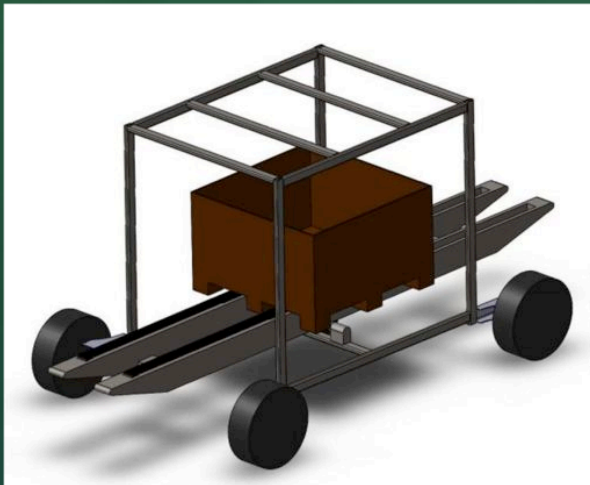
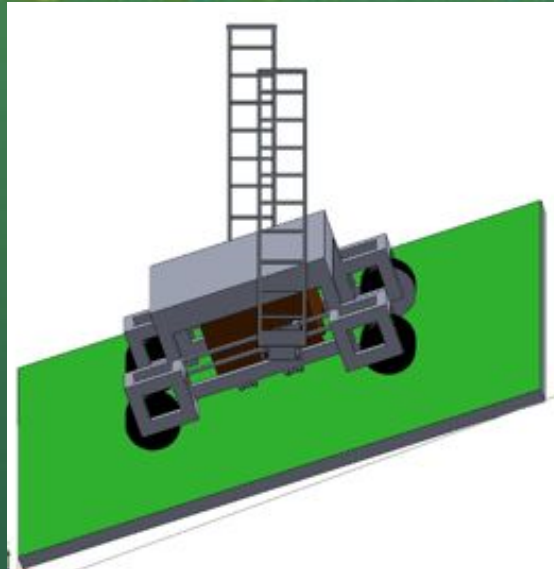
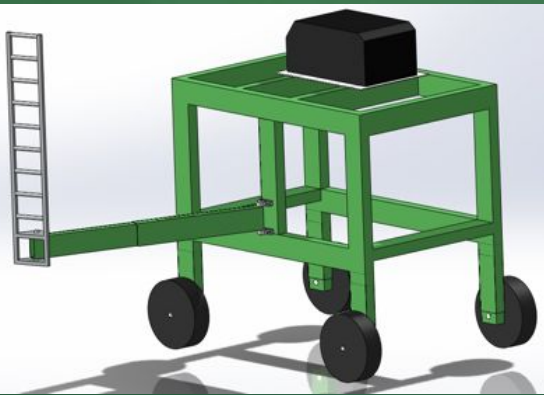
- Allows 1-2 picker to safely harvest fruit from height of 6-13 feet
- Is self-propelled and can work independent of a tractor
- Drives over and picks up fruit bins to minimize time dedicated to delivering fruit to the bin
- Includes leveling technology to allow use on grades up to 25 percent

Project Learning

- Current machines used in orchards were researched to find what parts of their design were useful



Design Process

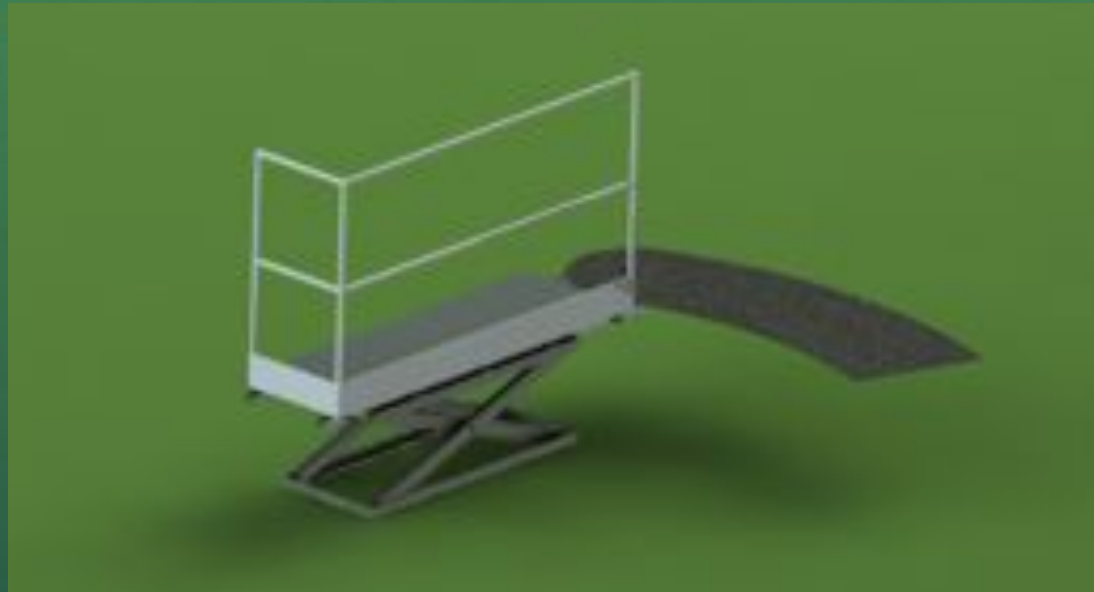


Frame/Leveling



- Leveling system similar to RVs
- Hydraulic pistons raise and lower each wheel
- Electric motor powers and turns each wheel

Platform



- Scissor lift raises and lowers picker
- Swinging arm accesses fruit in between trees

Testing of Scissor Lift



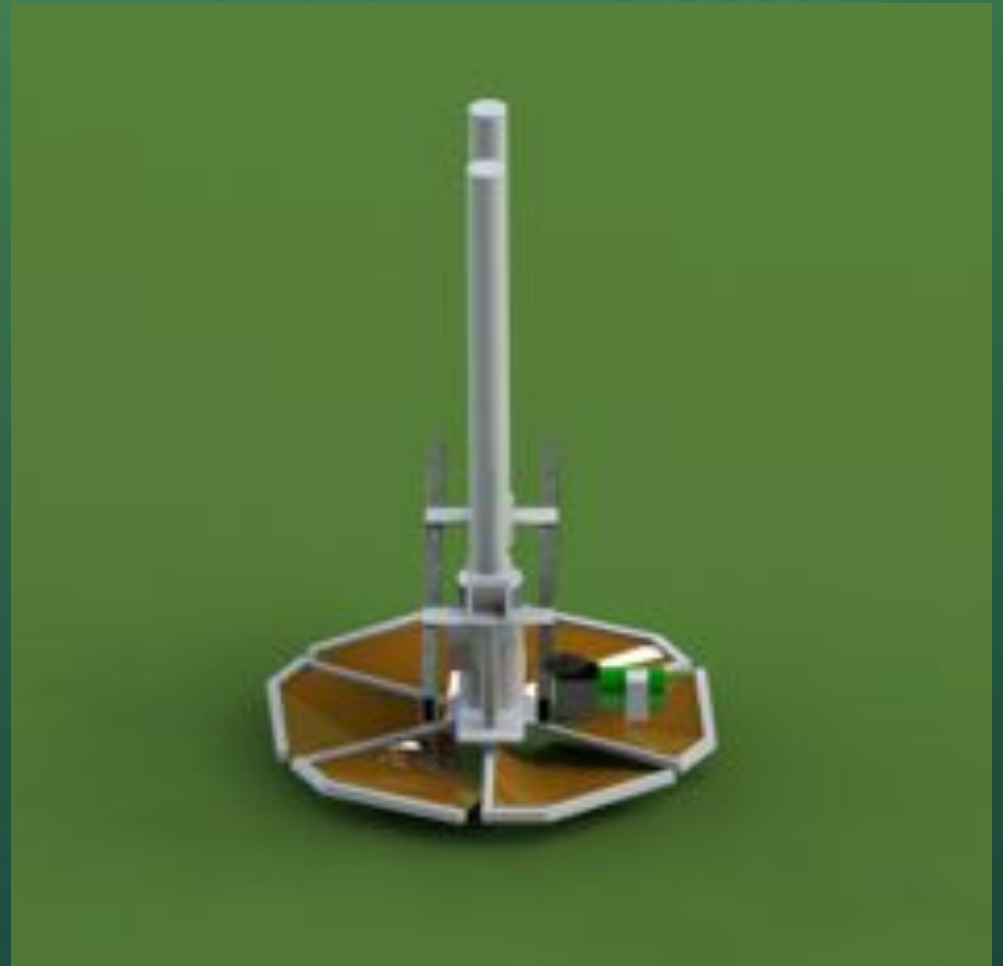
Bin Mechanism

- Located centrally in frame
- Arms swing under bin
- Mechanism is raised by acme screws



Fan Assembly

- Fan rotates above bin for fruit dispersal
- Future fruit transport solution would feed fan



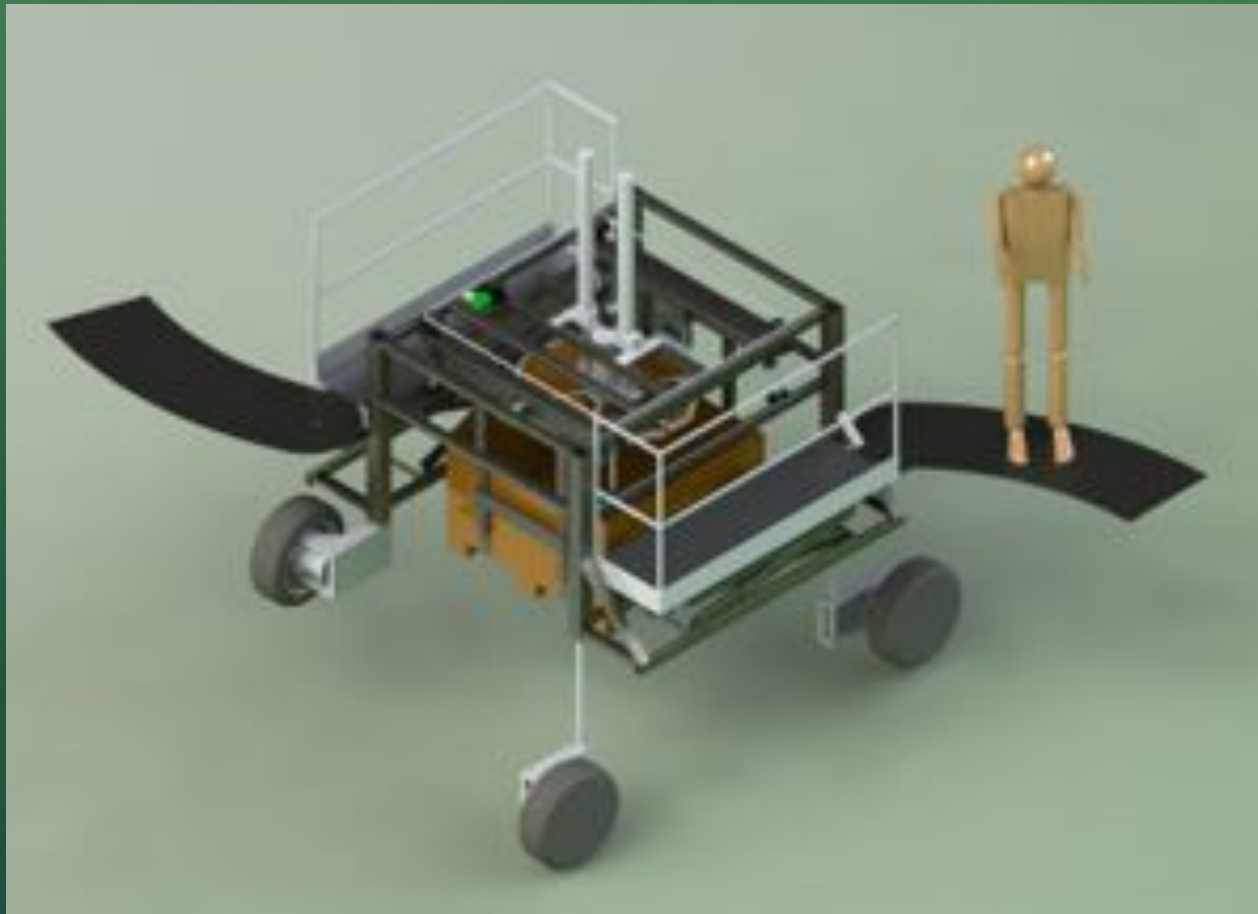
Working Prototype

Working prototype proved our design concepts with the following features:

- Hand cranked trailer jacks allow for bi-directional leveling
- Scaled down scissor lift provides vertical action
- Manual rendition of bin mechanism allows bin collection



Final Design



Thank you

