Automated T-Post Driving System

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Introduction

**Problem Statement:** T-Post installation processes are slow and labor intensive, there is a need for easier, economically viable solution.

**Objective:** Develop a remote operated machine that drives multiple t-posts without user assistance.

**Design Criteria:**
- Total weight < 250lbs (max load for UTV)
- Performance in all terrain environments
- Projected production cost < $750/unit

Final Design

**Final Design Features**
- 3,200lbs of impact force
- Two-axis leveling adjustment
- Installation cycle rate of ~60 sec/post
- 33 impacts per minute driving rate
- Total weight <300lbs
- Mounts on any vehicle with a standard 2" reviver hitch.
- 1 HP transmitted through a 1:12 gear ratio, a safety factor of 2.2 protects the AC motor from overloading.
- Remote-controlled operation

Operation

T-posts are loaded into the carriage assembly and dispensed into the driving position individually. Once the stop linkage is released, the mass is lifted vertically on the rail, by the chain driven notch, and dropped from a height of 2-3ft before impacting the top of the t-post. Once the post is driven to the desired depth, the stop actuator extends to return the mass to the storage position at the top of the rail. The vehicle will then pull forward and the t-post will release from the carriage assembly.

CAD Design

- Dispenser
- Carriage & Holder
- Gearing
- Stop Linkage
- Leveling System

Manufacturing

- Structures have been constructed of steel through various processes of welding, machining and cutting.
- Power transmission components were sourced and assembled with some modifications.
- The electronic control system is driven by a programmable microcontroller that communicates with a remote to operate electronic components.