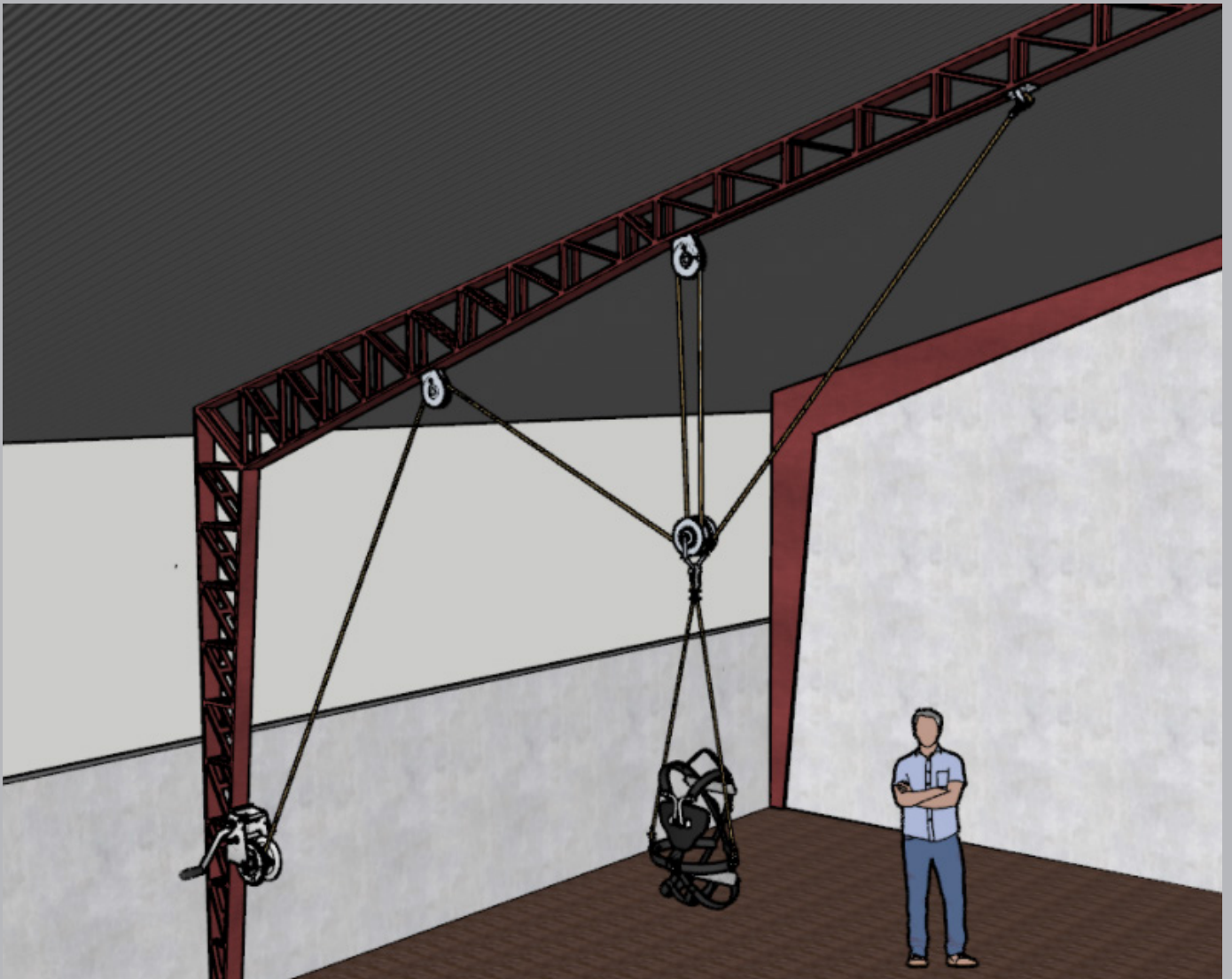


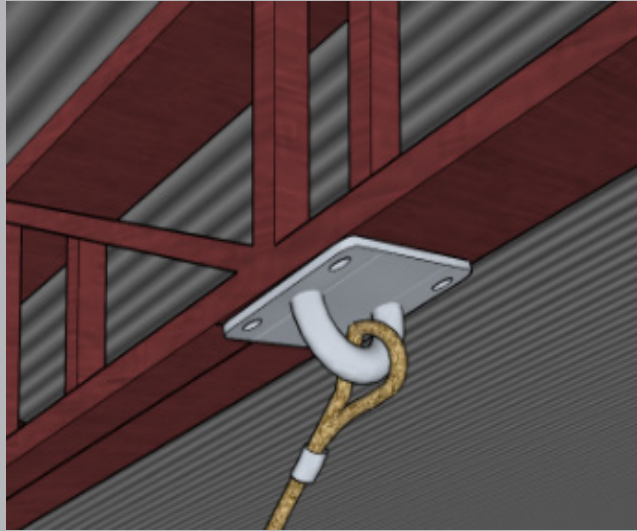
# Mounting Mechanism: Installation Manual



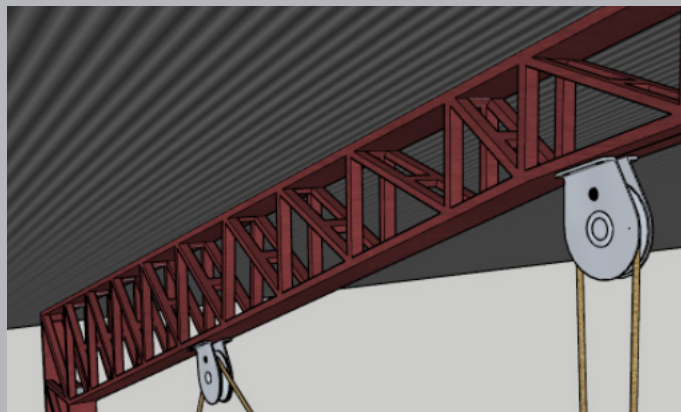
# Prototyped Device



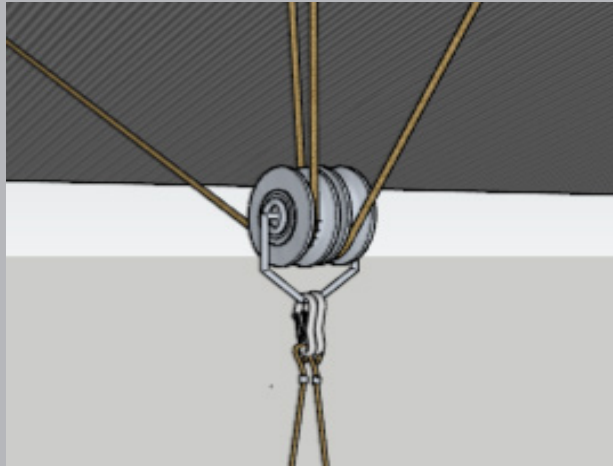
## *Anchor*



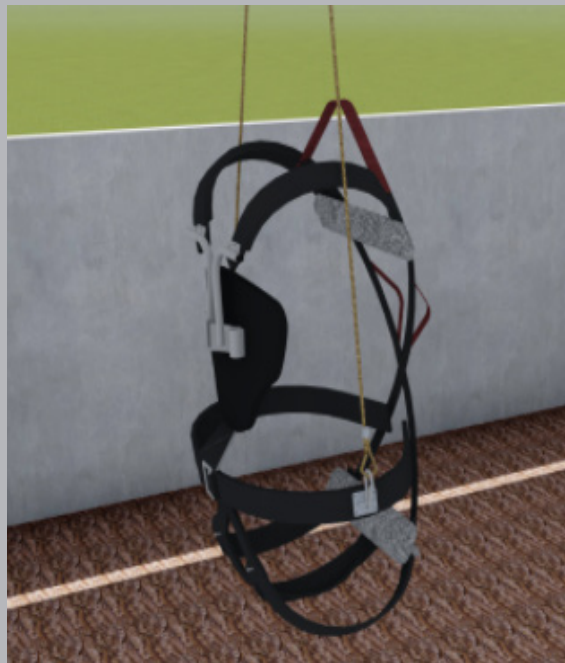
## *Mounted Pulleys*



## *Unmounted Double Pulley*



*Harness*



# Recommended Materials

## Product:

*Mounted Pulley x2*



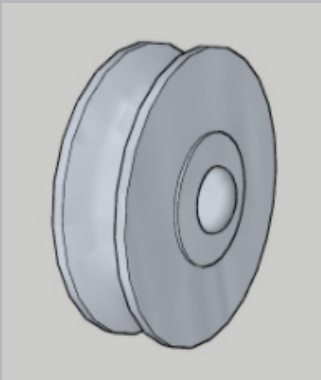
## Product Details:

**Distributor:** Coral Hipermercado

**Product Name:** Rueda Acero Inferior Fija Century 4

**Price:** \$6.64 / pulley

*Unmounted Pulley x2*



**Distributor:** Coral Hipermercado

**Product Name:** Rueda Acero Inferior Century 4"

2pzs/Set

**Price:** \$9.20 / set of 2

**Product:**

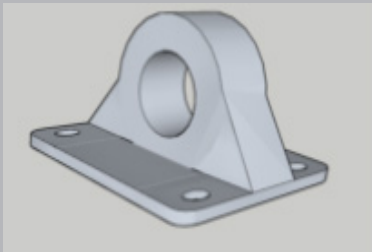
*Bolt*



**Product Details:**

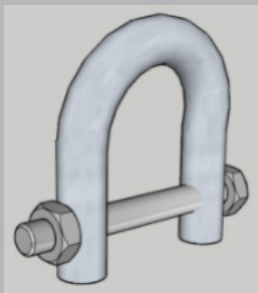
**Distributor:** Coral Hipermercado  
**Product Name:** Perno Anclaje Zinc  
1/2"X3"  
**Price:** \$3.35

*Mounted Ball Bearing*



**Distributor:** Coral Hipermercado  
**Product Name:** Chumacera Con Ruliman  
Pie-1/2"/2018  
**Price:** \$5.35

*Anchor Hook*



**Distributor:** Coral Hipermercado  
**Product Name:** Grillete Lira Galvanizado  
Cadena T 5/8"16mm  
**Price:** \$1.64

**Product:**

*Side Connectors*



**Product Details:**

**Distributor:** Coral Hipermercado

**Product Name:** Linea De Vida Para Arnes Seguridad

**Price:** \$41.08

*Harness*



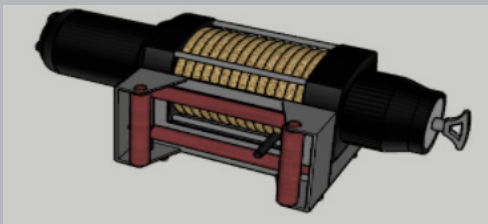
**Distributor:** Coral Hipermercado

**Product Name:** Arnes De Seguridad Century

**Item Code:** 4P410VA

**Price:** \$32.16

*Electric Winch*



**Distributor:** Coral Hipermercado

**Product Name:** Tecle Electrico

**Item Code:** 6T10270

**Price:** \$140.03

**Product:**

*Rope*



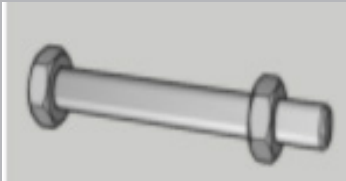
**Product Details:**

**Distributor:** Comercial Guillen

**Product Name:** Cable de Cuerda

**Price:** \$1.30 / kilogram

*Bolts x24*



**Distributor:** Coral Hipermercado

**Product Name:** Perno Anclaje Zinc 3/8"X2"

**Price:** \$0.33 / bolt



# Installation and Usage Instructions

## **Preparation:**

1. Collect all required materials as indicated from the Recommended Materials list (see page 4).
2. Bring electric winch to Commercial Guillen and replace metal cable with  $\frac{3}{8}$ " rope shown in Recommended Materials.

## **Installation:**

1. Drill  $\frac{3}{8}$ " holes into steel A-frame structure in areas designated for electric winch, mounted pulleys, and anchor point.
2. Secure electric winch, both mounted pulleys, and anchor point to A-frame structure as indicated by dimensions in Prototype Device Section.
3. Run rope from winch through pulleys and secure to anchor point.
4. Create a double pulley by securing two single pulleys with a  $\frac{1}{2}$ " by 3" bolt and nut.

### **Mounting:**

1. Fasten harness on client.
2. Fasten harness and client to carabiner from two rings on either side of client's waist.
3. Ensure all ropes are fastened to pulleys.
4. Turn on the motor of the electric winch in the backwards direction to lift the client.
5. Position horse under client.
6. Gently lower the client on the horse, guiding their legs on either side of the horse's torso.
7. Unclip carabiners from harness.
8. Keep harness on the client for the duration of the session.

### **Dismounting:**

1. Lead horse under mounting system.
2. Fasten carabiners to torso rings on the client harness.
3. Have two employees on each side of the client for support.
4. Turn the motor of the electric winch in the reverse direction to lift the client off of the horse's back.
5. Remove horse from underneath the client.
6. Lower client on the ground with support of employees.
7. Unclip carabiners from either side of the harness.
8. Remove harness from client.

# Device Testing

*It is recommended that all horses used to employ hippotherapy are desensitized to the mounting device system prior to testing the safety and suitability of the product for Kawallu's clientele. Once all animals are completely comfortable around the device, we recommend that you test this product before use. You should have a mock-mount and dismount using only Kawallu employees.*

## **Steps for Desensitization:**

Do not move onto proceeding step until horses have successfully demonstrated that they are comfortable and are clearly ready to. Any room for doubts should warrant the repetition of the completed step. This process must be performed with all 7 hippotherapy horses at Kawallu.

1. Allow a horse to engage in a hippotherapy session with the equipment installed, but do not use or draw any attention to the equipment.
2. Lead a horse around the arena while an employee is operating the device without anyone in the harness. Allow the device to run for the entirety of the described process.

Lead the horse in circles around the arena, slowly moving closer to the device with every lap. If the horse's body language communicates any stress, allow the horse to move further away from the device until they return to a stress-free demeanor and try again.

3. While an employee is operating the device without anyone in the harness,
4. Lead a horse under the pulley system while the system is not in use. Ensure that the harness is located directly to the side of the horse at an average client's waist level. Have an additional employee operate the system to mimic the mounting process of a client. From waist level, raise the harness above the horse's back. Lower the harness to touch the horse's back for a minimum of 1 minute. Lift and lower the harness back to waist level and allow the horse to calmly exit the arena.
5. Once all safety testing has been completed as described below, repeat step 4 with a Kawallu employee standing in as a client. Follow the steps listed above while allowing the 'client' to remain on the horse's back with the harness still attached to the pulley system for one minute before disconnecting the two carabiners on either side of the harness. Lead the horse around the arena for three laps with the 'client'. Then reattach carabiners to the 'client's' harness and dismount the 'client'.

## **Steps for Testing Mount:**

1. Secure the 'client' in the harness and attach them to the pulley system using the carabiner to the side hooks of the harness.
2. Using the power switch on the electric winch, begin operating the system and lift the client to the suitable height depending on the therapy horse.
  - a. Make sure to have an employee supporting the 'client' while they are being lifted.
3. Have an employee lead the horse underneath the 'client'.
4. Lower the 'client' down over the horse with the support of an employee.
5. Unclip the 'client' from the system by removing the carabiners from the two side hooks.
6. Lead the horse around the arena for three laps and observe for any signs of discomfort.

### **Steps for Testing Dismount:**

1. While the 'client' is seated on the animal, reattach the carabiners to the harness hooks on either side of 'client's' waist.
2. Turn on electric winch to lift the 'client' off the animal while they are supported by an employee.
3. Instruct the horse leader to remove the animal from the dismounting location, away from the mounting device.
4. Fully lower the 'client' back to the ground level.
5. Once the 'client' is comfortably standing or standing with the support of a Kawallu employee, unclip the 'client' from the pulley system.

# Contact Information

## **WPI Students**

Ishani Bedre, Sofia DeMonico, Megan Malito, Eda Raycraft

**Email:** gr-Kawalluc21@wpi.edu

## **Fabrication Shop**

Ferreteria Comercial Guillen

**Address:** Sangurima 5-70 y Hermano Miguel, Gaspar Sangurima 5-70,  
Cuenca

**Phone:** (07) 411-5332

## **Contractor**

Pablo Quizhipi [Austro-Pro Services]

**Mobile Phone:** +593 (099) 813-7559

**Email:** austropro.services@gmail.com