Automated Ratchet Strap

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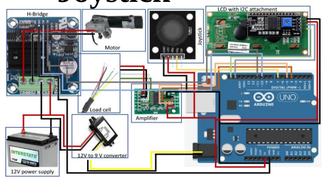
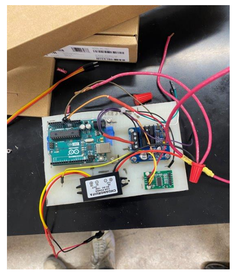
Controls

Components:

- **Arduino Uno**
- **LCD**
- **Load Cell with Amplifier**
- **H-Bridge**
- **Joystick**





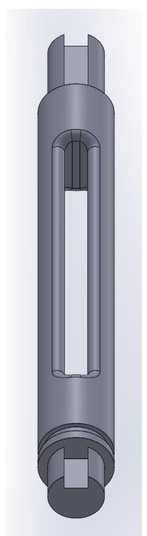
Manufacturing

Manufacturing Process:

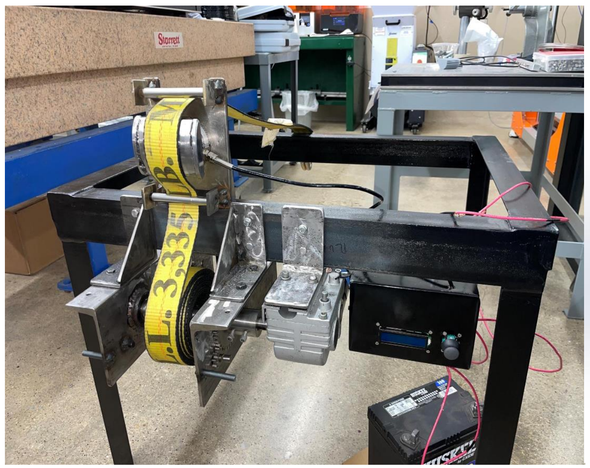
- **Mill**
- **Lathe**
- **Broaching**

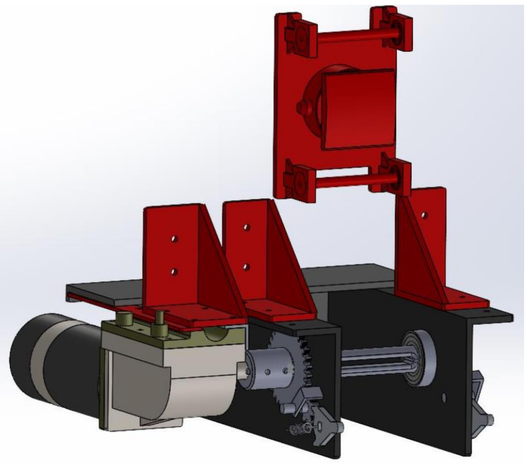
Assembly:

- **Welds**
- **Bolts**
- **Keys/Coupling**



<u>Mission Statement:</u> Our mission is to revolutionize cargo transportation by developing an innovative auto-tightening ratchet strap that not only secures the load but also displays the force on the load. Our strap's intelligent design ensures that it auto-tightens when straps loosen during load shifts on a journey, providing reliable and safe transportation for our customers' cargo.





Conclusion

The world of flatbed trucks will never be the same, gone is the life of hand tightening straps. We are proud of the final product though much can be improved upon; material selection, motor selection, minimalizing design and possible addition of other features. This project was a great learning experience, through teamwork and dedication every step from ideation till now has been a benefit to every member involved.

Features

1. Self-Locking Mechanism for Secure Hold

2. Tension Display for Precise Adjustments

3. Powerful Tensioning up to 250 lb

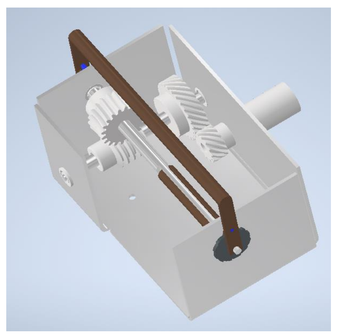
4. Auto-Retightening for Continuous

5. Interchangeable Strap Size for Versatility

6. Robust Construction for Long-Lasting Durability

Original Design

Our design has come so far from our original vision. We learned a great deal and we are proud of how far we have come!



"Started from the bottom, now we here"

-Drake