NMU SAE Baja Team

- Design and build an off-road vehicle
  - Needs to survive the punishment of rough terrain
  - 4hr endurance races as well as other events
- Compete against schools from around the world
  - National events include design judging
To be used by the NMU SAE Baja Team
- Current method uses a Joint Jigger™
- Drill shaft slides and rotates on bushings
- Can be dangerous to operate
Current Design

- **Pros:**
  - Simple
  - Easy to use
  - Portable

- **Cons:**
  - Bushing wear affects accuracy
  - Teeth catch and hurt users wrists.
  - Dangerous to operate
Our Design

- Needs to be easy to use
- Implement bearings to reduce heat and wear
- Make drill and bearings all one unit
  - Mount to a movable carriage while keeping tubing stationary.
- Use a handle to feed system into the tubing
  - Using gears similar to a lathe
  - Optional push handle
  - Keeps operators wrists out of harms way
Drill Assembly

- Standard Milwaukee Drill
- CNC Shaft with threads
- Standard 1.25in Hole Saw
Final Assembly
Additional Views
Budget

- ¼” Plate Steel – $100
- ¾” Round Stock – $20
- Rack and Pinion Gear Set – $110
- Crank Handle – $20
- Pill Block Bearings – 2 @ $35 each
- Rollers for Slide – 4 @ $15 each
- Drill Motor – $100
- Miscellaneous – $15
- Total – $495
Questions