

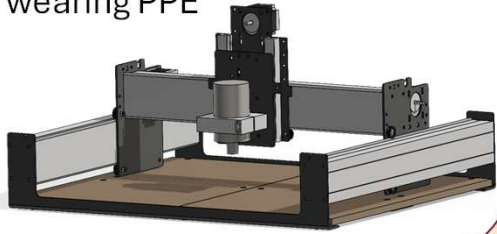
Safeguarding CNC Router

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Objective

- Manage safety concerns
- Increase safety of user while machine is running
- Mitigate concerns of user not wearing PPE



Background

- Method of precise machining using computers to control the cutting of material
- **CNC Router:**
Cuts/carves shapes into various materials via a rotating cutting tool

Critical Targets

Function

Halt
Projectiles

Create no
interference

Limit access
while running

Target

$\leq 4,000$ N

Fully
Operable

2 ± 0.2 mm

Metric

Impact Force

User
observation

Clearance

Concept Selection Characteristics

- Impact force on walls
- Clearance for body parts and dust particles
- Limited access to the machine while running
- Disassembly time for maintenance and maneuverability
- Displacement due to vibration

Hazards



Moving Parts



Projectiles



Impalement



Dust & Particulates

Final Design

