BACKGROUND
There are currently no commercially available CNC attachments to perform welding on a CNC machine. Alternate options on the market currently require dedicated machines which are large, expensive and can only do one task at a time. The only other similar product available is only capable of additive manufacturing, but not welding.

OBJECTIVE
Increase the versatility of nearly any combination of CNC Mill and Welder, allowing them to provide a wide variety of tasks such as:
- Welding
- Additive Manufacturing
- Selective Heat Treatment

HOW
By employing a combination of a spindle held tool and external box that seamlessly connects a CNC and Welder

WELDING HEAD
Allows for both TIG and MIG processes, 2 axes of rotation to reach any joint.

WELDING
Produces fillet and groove welds on mild steel under CSAW 59 (NDT). Inspected with volumetric, surface and visual testing.

AMP CONTROL
Sets the power of the welding head. Provides 2T or 4T amperage control

ADDITIVE MANUFACTURING
Homogenous deposits filler material onto the base metal. Allows for the revitalization of end-of-life components.

THE BRAIN
A simple user interface allows the operator to control shielding gas flow, welding amperage and wire feed speed. The PC interface communicates with an Arduino via a serial connection, allowing for dynamic control of the welding process.

SELECTIVE HEAT TREATMENT
Hardens or softens certain areas of a steel object. Creating a difference of hardness between these areas.

WIRE FEED
Feeds filler material into the weld pool at a rate determined by the user. Contained in a protective metal box.