Doing what I couldn’t do yesterday

with Pinweld
Repairing what I couldn’t repair yesterday
Making what I couldn’t make yesterday
A little history

Pinweld is an innovative technology start up working in the field of plastic welding. Supported by an Innovate UK SMART grant we developed our patented novel welding equipment together with our partners & some invaluable guidance.
So what is Pinweld?

The ability to accurately & reliably join semi-crystalline thermoplastic mouldings without using fillers, fixings, adhesives or even much energy...

...for the first time

You know, the stuff they make wheelie bins from. Plus bumpers, boats, masks, furniture, pipes, ducting, signs, planters, panels, boxes & much, much more
So what is Pinweld?

Some comments as we engaged with people & press on the project:

"a sewing machine for plastics"

"the opposite of a jigsaw"
Problem

Market gap
Few, if any, products on the market help repairers create a fast, reliable & sturdy repair for sheet PP based plastic products

Target audience
Automotive bodywork repairer market valued at £20m in 2018

Costs
Escalating costs, commercial & societal pressure to change

External forces
Increasing use of sensory electronics & variable recycled material content look set to outpace repair attempts
Solution

Close the gap
A right-first-time repair gives repairers & customers options. No other technology on the market offers the same features.

Target audience
Insurer led & independent automotive bodywork repairers

Savings
A return on investment measured in weeks. Reduction in replacement parts, packaging, transport & recycling

Intuitive in use
Simple design giving repairers the safe, low energy, market specific solution they need
New possibilities

Reimagine

If the joint isn’t required for maintainability & is really just a legacy feature of previous design limitations, why not weld it?

Benefits

• No seals, sealants, fastenings or clamps - no leaks
• Less material (no shoulder) promotes lightweighting
• Modular construction & Mass Customisation opportunities
• Enhanced repair options extends usable service life
• Homogenous assemblies promote EOL recycling
• Single pass customer-ready weld path
• An automated low-energy process
Current research

Water pipe jointing
The goal of leak-free installation of new water distribution networks to address currently unsustainable leakage levels

Target audience
UK Water distribution companies & export opportunities

Support
2nd Innovate UK grant to develop the AI controls with TWI, ATS Global, Lancaster University & notable other partners

Benefits
Improved pipe joint quality by removing equipment errors & contamination at source during installation
Current research

Automated manufacture
To compliment modular manufacture & FDM (3D Printing) techniques for fast, short-run / high-value applications

Target audience
Automated manufacturing specialists & integrators

Support
University partners & industrial robot manufacturers

Benefits
Reduced financial barriers to entry compared with large format moulding combined with particularly low energy use & high accuracy, discreet & repeatable welds
Current research

**Water pipe repair (internal)**

The goal of creating an automated repair payload to address currently unsustainable background leakage levels from within

**Target audience**

UK Water distribution companies & export opportunities

**Support**

TBA (07/ 2023)

**Benefits**

Improved water provision & an enhanced ability to quickly target identified background leakage through No Dig methods reducing the costs both financial & environmental
Design opportunities

Unique
The only technology specifically dedicated to the goal of welding ANY thermoplastic (including reclaimed & bio based)

First to market
Linear welding of sheet form hard plastics including PE & PP, materials that have stubbornly resisted solution.

Tested
Low deformation, high performance welding already exceeding strength requirements for certain industries

Research
Ongoing Innovate UK supported development with materials experts at TWI & our university partners
Summary

At Pinweld, we believe that our welding solution will inspire new products, new opportunities & new routes to circularity. By offering our next-generation technology, we want to help others achieve great things while using fewer resources.

We thrive because we engage with knowledgeable partners to form great teams, as long as you the designer want to “Make what you couldn’t make yesterday”
Thank you

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