



REDWELD

REDLAB ENGINEERING

REDWELD WELDING SIMULATOR

REDWELD VR - Virtual Reality

REDWELD AR - Augmented Reality

VIRTUAL REALITY AND
AUGMENTED REALITY
TECHNOLOGY CAN BE USED TO
FACILITATE WELDING TRAINING
IN A SIMULATION ENVIRONMENT.

TRAINING SESSIONS IN ELECTRIC ARC WELDING, GAS METAL ARC WELDING,
CORED WIRE ARC WELDING, AND TIG WELDING ARE AVAILABLE.

WELDING SIMULATOR

The most essential devices used in welding training are virtual reality and augmented reality based welding simulators. Training sessions in electric arc welding, gas metal arc welding, cored wire arc welding, and tig welding are available.

Data such as feed rate, advance angle, operating angle, position, and arc length distance can be reported instantly while welding in the virtual environment.

Types of welding:

- Electric arc welding
- Gas metal arc welding
- Cored wire arc welding
- TIG welding



Electric Arc Welding



TIG Welding



MIG/MAG Welding
Flux-cored Arc Welding

WELDING SIMULATOR

Advantages:

The use of welding simulator technology in welding training applications instead of traditional methods reduces material waste and improves workplace safety; joint methods, welding positions, materials, material thicknesses, and welding type may all be altered quickly.



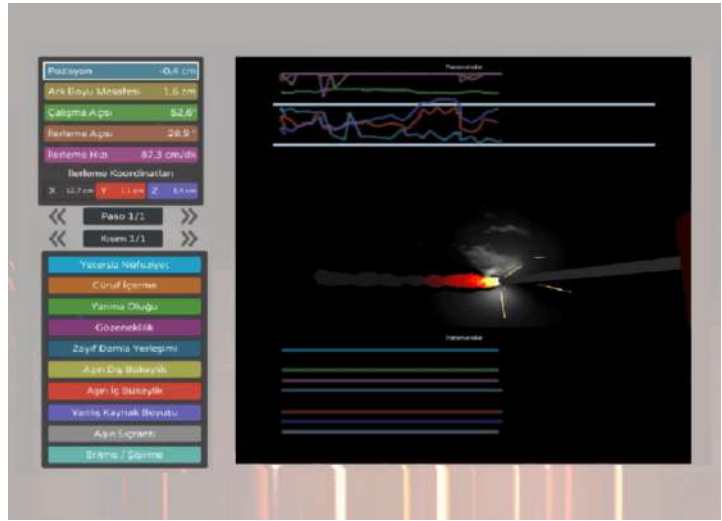
Welding simulation system equipment:

- Welding machine,
- Welding desk,
- Stand system where the heights and positions of parts can be adjusted,
- Under-gas and tig torches in original weight and structure,
- Custom design welding pliers,
- Virtual reality / augmented reality supported welding mask.

WELDING SIMULATOR

Analyzed Parameters:

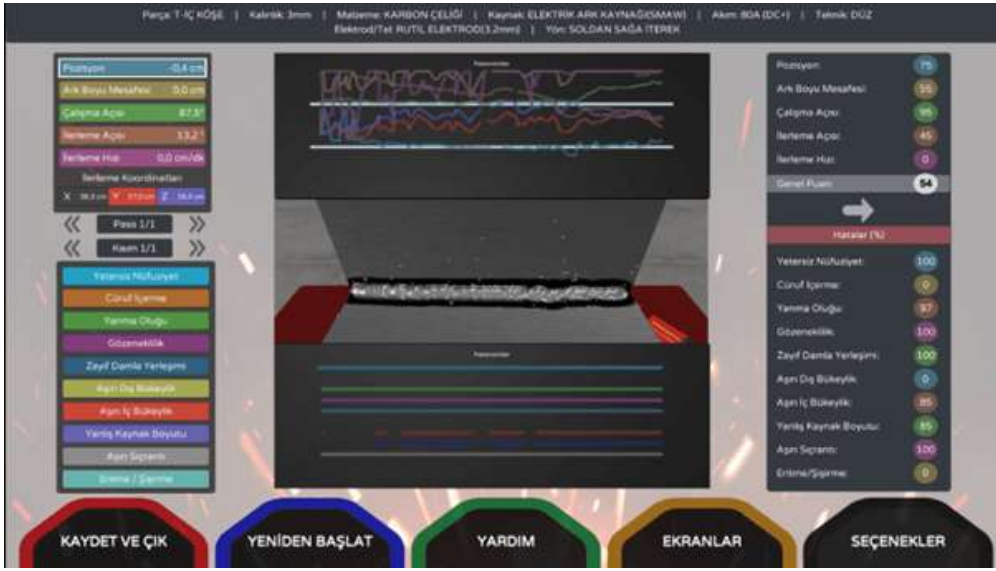
- Feed rate,
- Advance angle,
- Operating angle,
- Arc length distance,
- Position,
- Distance between contact nozzle and workpiece.



Analyzed welding errors:

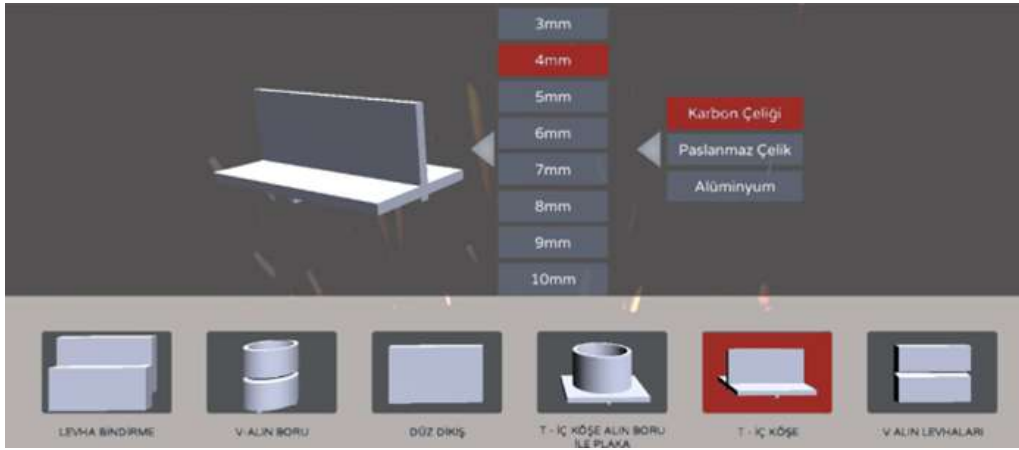
- Insufficient penetration,
- Slag containment,
- Combustion groove,
- Porosity,
- Poor drop placement,
- Excessive outer / internal bending,
- Incorrect welding size,
- Oversplating,
- Melting / inflating.

ANALYSIS SCREEN



- Instant analysis of welding parameters and mistakes is provided.
- On the data screen, all data may be displayed graphically.
- It is possible to inspect a live welding seam.
- Welding failures are displayed along with their location on the material.
- Analysis can be used to evaluate the welding.
- Separate analyses can be performed on welded sections and passes.
- It is possible to capture the welding report as well as the welding video.
- Simulations of leaping slag and electrode melting are possible.
- It is possible to remove the welding shell and clean the welding seam.

PART SELECTION SCREEN



- Welding part positions (ceiling, perpendicular, horizontal, cornice) can be changed.
- Parts for welding and connecting positions can be chosen.
- The thickness of the items to be welded might range from 3 to 10 millimetres.
- Carbon steel, stainless steel, and aluminium are all options for part materials.

HELP (VISUAL HINT) SCREEN



Visual hints can be observed before or during the welding process, assisting the operator in welding with more precision.

- Use the guideline assistance to see where the welding should be done.
- Speed assistance can be used to ensure that progress is maintained at optimum levels.
- By looking at the angle assistance, you can keep the advance and operating angle at their best.
- By examining at the distance assistance, you can keep the arc length at its best.

AREA SELECTION SCREEN



Welding in different areas can be experienced by changing the media to be welded. It is possible to move in the all direction within the selected virtual environment.

- The construction area (open environment) can be selected.
- Welding workshop environment (indoor environment) can be selected.
- Maintenance facility environment (open environment) can be selected.

WELDING PARAMETERS INPUT SCREEN



- Current, volt, wire riding speed values can be adjusted.
- AC, DC+, DC-polarization can be selected.
- Gas mixture and gas flow can be adjusted.
- Electrode material and diameter can be selected.
- Welding seam direction and seaming technique can be selected.

USER EVALUATION SCREEN



- All data of the welding performed by users can be accessed.
- Video footage of users recorded during the welding can be viewed.
- Multiple-choice exams can be created to evaluate users.
- Exam result data can be examined.

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