



WELDING SEAM INSPECTION AND CONTROL SYSTEM

About the Client

The client is the largest Indian multi-national firm headquartered in Mumbai, Maharashtra, India. The company has business interests in engineering, construction, manufacturing goods, information technology, and financial services, and has offices worldwide.

Summary

The developed system should examine, analyze, and correct the course of the electrodes in real time with extreme precision.

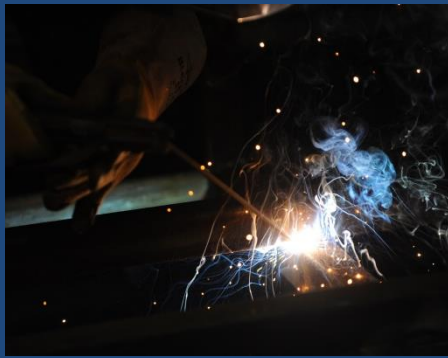
The quality of welding should not be compromised. The ambient temperature being very high and the welding temperature even higher makes it difficult to monitor the position of the electrodes. Due to nature of welding the controlling action has to be quick enough in order to not create any discrepancy.

The Challenge

An Automated system has to be developed in order to inspect whether the electrodes responsible for welding are on the correct course or not. If any deflection is detected the course should automatically be adjusted in a precise, deterministic and quick manner.

Our Solution

Optimized Solutions has provided an automated Image acquisition system along with software for continuous monitoring and control of the seam. The system consists of an camera which is able to capture images at a very high rate and transmits it simultaneously for the image analysis using the software. After the analysis if any deflection is detected the controlling action takes place and proper course adjustment is made.



INDUSTRY

Heavy Engineering

KEY CHALLENGES

- High Working Temperature
- High precision required
- Quick controlling action

SOLUTION

- Self course correcting system
- Data in images and video
- Selection of Region of Interest

Benefits

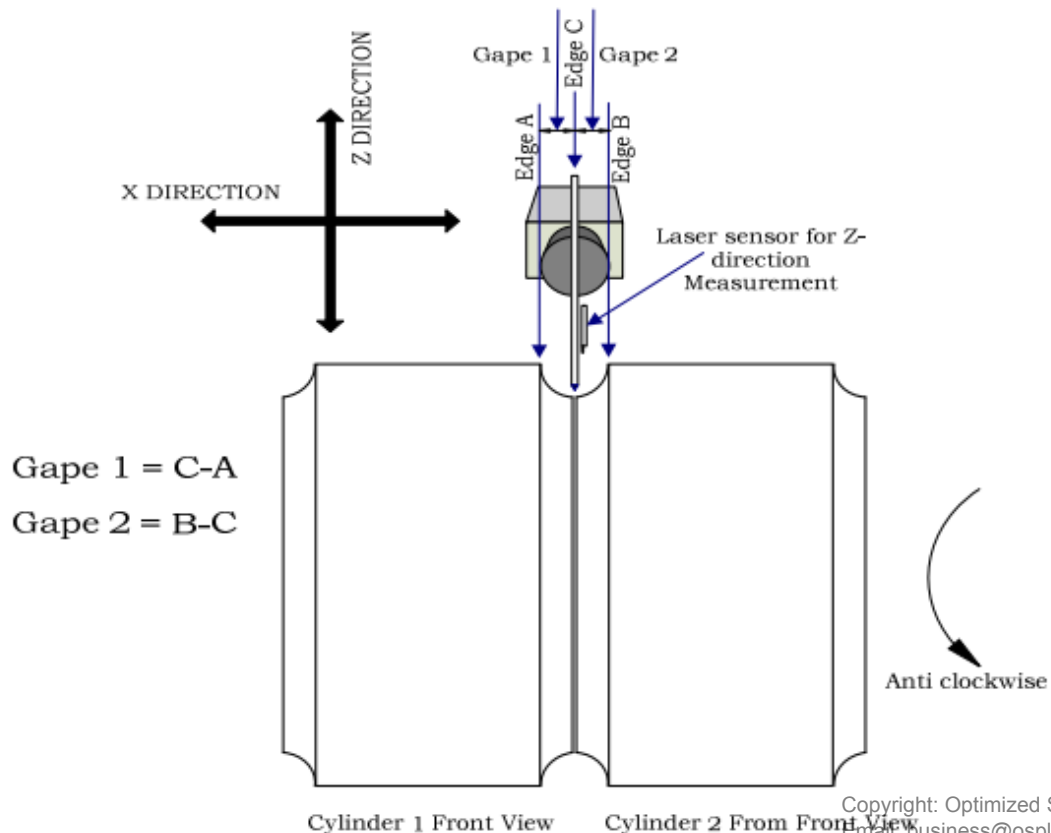
- Non-Contact system
- Great safety features
- Highly resilient
- Customizable parameters



Camera is positioned to top of the shell and inclined to vertical axis. So the operator can see the shell groove as well as electrode in the Graphical User Interface. Precise sensors are mounted on Electrode to measure the ovality of the weld that takes place. The Image acquisition system compares one of the groove edge position to its respective value and accordingly a response is given to the system. According to the response proper signal is given to the hardware in order to correct the course of the electrode.

User Name: ADMINISTRATOR		Date and Time Mon, May 04, 2009, 11:27:37 AM	
File Name:			
Customer Name [Text Box]	Welding Voltage From 240 To 250 Volt	Welding Current From 15 To 25 Amp	Surface Speed From 16 To 25 mm
Project No 21_Z329/8	Wire Type EJ	Shell Thickness 300 mm	Shell Groove Type Single V
Shell No LHZ 21_Z329/8	Flux Type EJ	Job Temperature 278 °C	Groove Width 30 mm
Seam No 23			Browse File [Button]
Shell I/D 11 Meter			Save [Button]
Total Shell Length 17 Meter			
Keyboard Select			
Configuration & Processing		Generate Report	
Camera Setup		PID Setup	
Exit [Button]			

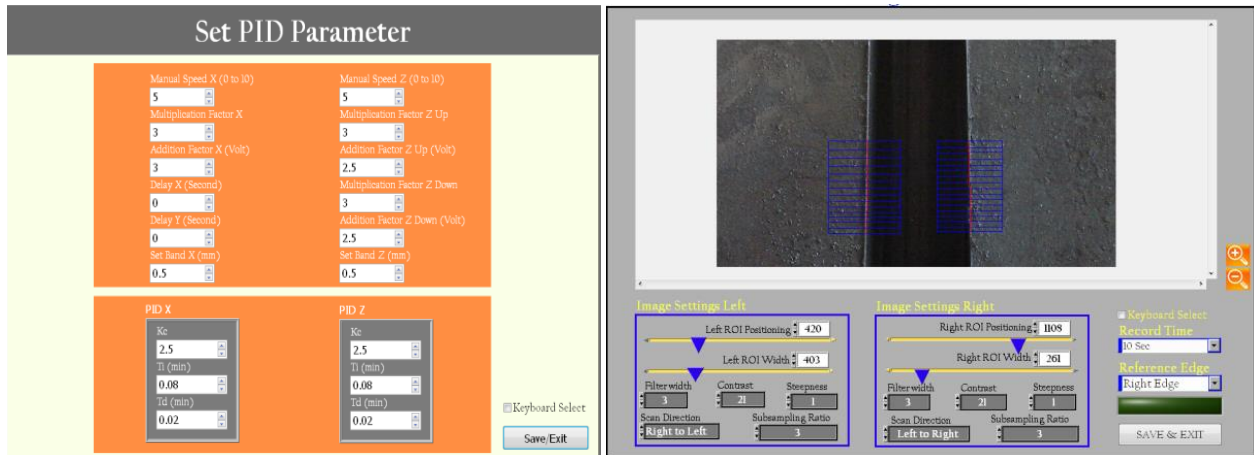
The graphical user interface is designed in such a way that the operator can define the attributes for any specific project, making the system compatible for multiple types of projects. The operator can visually see the monitoring and record them for analytical purposes. Specific Region of Interest can also be defined according to the application.





Benefits

- The solution provided by Optimized solutions is an highly accurate system that lifts the task of controlling the welding seam from the operator and fulfills it with utmost precision.
- The user interface is interactive and customizable according to the operator's requirement.
- The system being highly resilient provides a huge advantage as the operating temperature of the system is very high.
- The system safety is also considered for situations like overheat and record them in the error message log



Benefits Against Alternative

- A single system can perform the application for multiple types of projects whereas in other systems a separate setup must be found for each type of project.
- The safety being a major concern, the OSPL's system ensures the safety of the operator and the project.
- Automatic control with that level of precision is unusual to be found in other systems.

Our Value Addition

- Creating a customized ,user friendly and budget friendly solution is something that Optimized Solutions does best.
- Having engineers who are eager to learn and try out different prospects are the biggest reason Optimized Solutions can provide such Solutions.