

Case Study

Product Compliance Centre - Solihull



Automotive Control Centre



Project Overview

Jaguar Land Rover were to expand the capacity and capability of their Emission Test Centre to cope with the increase of their overseas sales and expansion. The original centre consisted of a single vehicle test cell and a small and uninviting office. The test process was difficult for the engineers with complex procedures and paper readouts. The requirement was for a second cell to be built and a revamp of the office and control systems utilising the latest technology and innovation.

The incumbent JLR AV companies were unable to provide a solution to meet the requirements of the Project Managers. Phoenix AV, then a non-JLR supplier company, were recommended and sub-contracted through Horiba systems to design and facilitate a new Control & Recording system. Working closely with the Project Team, Phoenix AV designed and installed what was to become one of the most advanced facilities at that time and the template for future JLR Test Facilities.



LOCATION

Emission Test Centre - Solihull



DATE

April 2012 - January 2013 (4 Phases)



PHOENIX STATUS

External Sub-Contracted AV Integrator



NET VALUE

£226,268



MAIN EQUIPMENT

10 Screen Samsung Videowall
14 x CCTV & Intercom System
Interactive Touch LCD Screens
Video Conferencing System
Lab Visualisers

Complex Extron Matrix & Control Solution
Video & Process Recorders
Display Signage
3D Screens and 3D Walk-Through
Specialist Meeting & Office Systems

Existing Situation

The Solihull Emission Testing Laboratory was acknowledged as having one of the most advanced test and instrumentation facilities in the motor industry worldwide and was due to have a second test cell build to meet with increasing vehicle production and testing demands.

However, the existing Test Cell was located next to a small 'scruffy' Control Room, which contained a number of test servers and other instrumentation under the control of a single computer.

The users had to monitor the single PC screen either switching display views between the required servers, or walking to the test server screens to monitor other screen data.



There was one small window in the wall adjoining the Test Cell allowing for limited observation into part of the test cell.

The test reports were mainly paper based, with lots of numerical values and required careful concentration and analysis by the test team.

Most advanced test and instrumentation facilities

Requirement

The initial requirement was for an improved Control Facility, initially consisting of a video-wall to allow for multiple screen views and centralised control capability for both test cells. However, as Phoenix AV learned more of the testing procedures and JLR understood more about Phoenix AV's capabilities, the project rolled out into 4 phases and included recording and monitoring systems, remote control and access for external clients, video conferencing and 3D review and integration software.

Technology

The project has ended with a comprehensive mix of integrated technologies, some of which were employed from the point of launch into the general market, identified as a result of the close liaison between Phoenix AV, manufacturers and distributors. Technologies included:

- **10 x Screen, 5m wide videowall:** allows any combination of up to 20x Server PCs, 14 x CCTV and Control Room video conferencing to be displayed across the whole of the screen area.
- **Control Systems & Matrix:** includes touch screen LCD Controllers to allow operators a simple start/stop functionality for the various test programmes that need to be run, as well as video wall image control and diagnostics.
- **CCTV & Intercom Systems:** allows for easy communications between the various cells and control room as well as enhanced monitoring to any area of the Test Cell, not previously possible.
- **Recorders:** Records the in-use cell CCTV along with the relevant server test programmes in real time, allowing video/audio data to be stored with the vehicle test documentation for the first time. Also enables external access and data view from remote locations (e.g. international Inspectors).
- **Interactive Touch LCD:** Large format interactive screens to allow for easy entry and immediate viewing of vehicle test data (previously on a standard marker board) as well as ad-hoc briefings.
- **Revamp of Office / Conference Room** using latest desk technologies to allow for use either as an office or at a touch of a button, retract the pop-up monitors for use as a conference facility.

- **Video Conferencing** capability for the main control and office rooms as well as individual users and employees, thus allowing for immediate multiple location/individual conferencing anywhere, including client locations around the world.
- **3D Monitor Screen** in separate conference room, allowing guests to view test cells and equipment in a 3D walk-through environment without disturbing any on-going testing.
- **Reception Visitor Self Booking System:** in-keeping with the overall innovations, the reception area was also upgraded to include a visitor, interactive touch self-registration point.
- **Laboratory Visualiser:** located in specialist clean lab environment to monitor via camera the precision weight of filters.

A comprehensive mix of integrated technologies

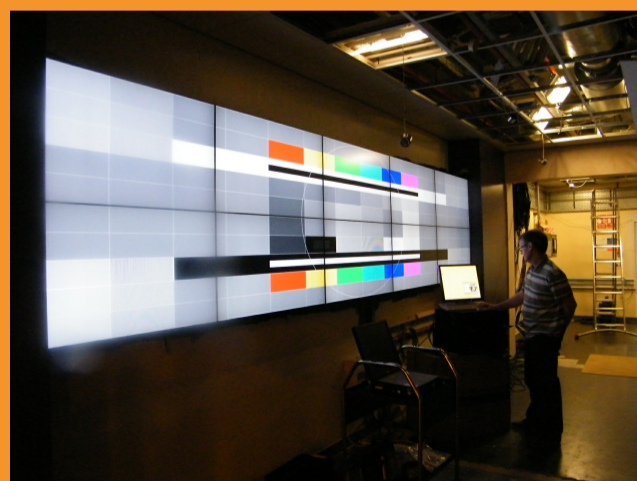
Design Phase

Phoenix AV were responsible for much of the design of the layout including the main control desk (built by an external joinery company) whilst the JLR PM was responsible for the aesthetics and reviewing future requirements and innovations.

Phase 1 was primarily the video-wall, control and CCTV elements; Phases 2 and 3 saw the introduction of the recording for video and data along with additional communications, video conferencing and external access capabilities and Phase 4 covered the new office complex, reception and integrated 3D solutions.

Systems Used

The video-wall was based on the [Samsung 46" UTn](#) system as this gave the thinnest bezel for a video wall, whilst 55" [Sahara CleverTouch LCD](#) screens were used for the interactive information screens. The [Dexon](#) control solution was used for the video-wall, allowing the users flexibility in what was shown across the video-wall from a variety of CCTV and test servers, the first time operators could view all required screens used in any test at the same time. [Epiphan](#) recorders in conjunction with the [TV-One MultiViewers](#) were used both for video and data as well as external accessibility.



[Aten](#) systems were used in conjunction with [Extron](#) control technology for enabling users to control a variety of [Twilight](#) cameras and computers from a single point. A [WolfVision](#) visualiser was installed in the 'clean-lab' and operated from the main control desk. Other technologies used included [I-Desk's](#) excellent 6 station desk with retractable monitors and [Lesar's](#) unmanned visitor registration system.

Installation:

The installation was managed by Phoenix AV who liaised with the various site suppliers including the main contractors, and a number of additional project contractors such as the Joinery company (integration of systems into the control desk), lighting (integration of lighting into the control system), builders, ceiling tilers, electricians, plasterers, network / IT management and more, all of whom had an impact on the AV element of the project.

Issues Faced

The main issues were centred around the physical installation and the changing requirements. One key point was that Cell 1 remained operational throughout requiring special consideration for the integration of its systems.

The JLR PM constantly challenged the Phoenix Team for new ideas and solutions as the project progressed. This was in part due to the Phoenix Team learning about the requirements and potential for the Test Centre and recommending new innovations and the JLR PM recognising the capability of new technology and challenging new ideas and concepts.

Final Solution and Outcome

The Solihull Emission Test Laboratory at the time of completion was recognised as the most advanced in the world, both in terms of physical testing capability and the control elements.

The facility allows operators to view all test screens and see the various aspects of the vehicle in the test cell at the same for the first time. In fact, both cells can be operated from the same 3-seat desk together. Additionally, the facility has the capability to communicate with anyone around the world, giving them permission to access remotely and view all elements of the test (live video of vehicles in the cells along with the test data screens) thus offering the ability to greatly reduce international travel and the associated costs and carbon footprint implications.

Recognised as most advanced facility at that time



Impact (Future / Use)

The system has been put into place amidst a working environment (Cell 1 has been operational throughout), but the physical and psychological impact has been greater than expected.

Aesthetically, the Control Room and associated offices have been improved dramatically, providing an immediate first impression to all visitors. The physical capabilities of the Control Room are also appreciated and the recognition by all employees that the system is an enhancement for them also, an important psychological factor.

Finally, although there is a cost attributed to the build, it is also easy to see both the short and long term benefits be that to the working environment, the potential long-term savings or just the status of JLR throughout the motor industry. As such, the project had a 3-day international launch planned to introduce it to the industry as a whole, with the interest from many government bodies both in the UK and overseas.

JLR have enlisted Phoenix AV as one of their specialist accredited suppliers following completion of the project and the facility became the template for future JLR Test Centres with Phoenix AV going on to install a Control System for a 5 Cell Centre in Whitley as well as a variety of other projects recorded in separate Case Studies.

TESTIMONIAL

Project Archimedes

The scope of the project was broad, deep and fluid in nature given the technical complexity, sensitivity and all-encompassing and controlling design. More importantly, the project presented a technical breakthrough and not insignificant advancement in the field of emission testing, although in reality its scope and applicability are suitable within other sectors of the industry.

On reflection, what was achieved not only exceeds all expectations but fundamentally more important, opened up a whole new dimension of boundless opportunities within the wider industry for AV.

Phoenix AV have demonstrated unparalleled ability to adapt to a brutally fast paced environment, deadlines and expectations; more often than not, they were expected to provide technical solutions where no such seem to exist. Their unique and flexible approach, motivation, dedication and drive meant that rarely did they deliver that what was expected of them - they did much more, they excelled. Being a small organisation you could be forgiven for thinking would be their weakness, no so, they turned it into their strengths and did the impossible that would have vexed, challenged and defeated the biggest of their competitors.

Phoenix AV will be the first to admit, that they learnt a lot during this project and whilst what they delivered is unquestionably and recognisably World leading technology, it is what was learnt collectively that will set to revolutionise, amongst others in the AV industry.

Whilst at this stage one is unable to provide a report in the requisite video format, it would be a travesty nevertheless for this application not be considered given the high profile and significant of this project Globally.

One would be privileged to extend to you an invitation to visit one of Europe's best Vehicle Emission Laboratories and let you judge the advancements made here.

Michael Stoysavjivic M.Sc
Principle Engineer
Product Compliance Centre
Emissions Conformity of Production Laboratory

We may be small, but we make a big impact