Introduction to (AR) Augmented Reality

Augmented Reality (AR) is the technology currently making a big impact with industrial applications allowing technicians to perform service and repairs by accessing the latest digital repair processes and service manuals. The technology is also being used for training providing a new level of digital knowledge like never before. AR Apps enable the user to view the real world with overlaid computer-generated images (CGI) – part design information, CAD data, text and animations projected in the users field of view.

AR has been a topic of interest in the Automotive industry with many of the leading manufacturers beginning to explore digital systems in conjunction with the internet of things (IoT). Technologies have matured becoming cheaper, advanced analytics using AI, and a new wave of automation coming with the Industry 4.0 theme. These advances are making it possible to gather and analyse data across machines, enabling faster, more flexible, and more efficient processes to produce higher-quality repairs at a reduced cost. This in turn will increase productivity, shift economics, foster industrial growth, and modify the profile of the workforce—ultimately changing the competitiveness of companies and regions.

Target Detection

Target detection and stability is a critical success factor for leading AR applications. Being able to move around a large object such as a vehicle or machine with a consistent target lock and correctly aligned overlay is essential for a satisfactory user experience. Whilst most AR developer platforms, have some limitations with light reflections and is limited to 2D targets determined from a chosen view angle of a 3D object rather than full SLAM capability with persistent location in the user environment. The virtual overlay in many cases will drift away and become misaligned from the real object as the user moves around it beyond the original target viewpoint.

WorxAR is working on technology advancements in target detection with the ability to maintain alignment and stability even with a moving target allowing for higher levels of engagement and information connectivity.

SMART (AR) Devices

The most common AR devices are everyday smartphones and tablets. More recently a range of AR headsets have become available, though they are restricted on performance due to screen size and information accessibility also costing a significant amount more than a phone or tablet. All AR tools can detect real world objects and allow CGI and data interaction with these objects on the digital platform. These systems also enable interactive real-time video streaming, remote communications and information exchange via a multiuser platform.

The power of AR

A new world of information at your fingertips.
For applications in the automotive repair and service industry, AR provides several significant benefits. The primary benefit is hands-free context relevant information such as technical data sheets, schematics and step by step procedures appearing in the users field of view without obscuring the view of what they are working on. This makes the information more intuitive and can help the user pinpoint the location or object that is the subject of the information. Applications may be applied to show a technician an "x-ray like" view of the assembly highlighting where parts are and how to disassemble or reassemble them.

Manuals and OEM Procedures

For OEM repair and service procedures, training manuals or data from equipment can be presented on a virtual dashboard. Similarly, virtual quality control check sheets can prompt the user to verify the status and condition of the job including capturing data and images for quality records. No more lost time searching for information or asking other technicians as this new technology, accessible via your smartphone, tablet or an AR headset, directs your attention to its exact location and provides information live at your fingertips. Even for consumer use changing a tyre or setting car controls via AR provides a new level of virtual assistance.

Training & Instant Knowledge

AR technologies are going to play a significant part in providing both instructional information and guidance with real-time feedback during on the job training exercises. The advantages of providing real-time context-based training are being realised with improved access to relevant information and intuitive modes of learning. This results in trainees being brought up to speed in considerably shorter timeframes than ever before. Instructional content and check sheets to confirm the user's knowledge and confirm completion of the steps in correct order and/or with measurable outcomes from the target objects.

Job Planner and Management

For service and repair tasks the job planning will provide exploded views of assemblies on the target object with sequence and embedded standard times for disassembly. Individual parts may be tagged and marked up for dismantling, repair or replacement with an image capture function pre programmed by admin users or by default. Additionally individual parts may be tagged with useful information such as material type, mass and associated consumable items.

Remote Job Assistance

Provides the user with the ability to create a live connection overlay to a technical support expert who is then able to facilitate a guided troubleshooting scenario, service procedure, instructor feedback or interactive estimator quote process.

WorxAR

WorxAR
AR Software + Mobile Application
by **TRADIEBOT**

WorxAR is an Augmented Reality software providing seamless and intuitive delivery of context relevant information via your own online platform or mobile App.
This ground breaking AR technology will help businesses better connect, adapt, comply, assess and repair with your staff, customers or network.

The WorxAR (AR) software is designed to digitally support business in achieving their goals by providing intuitive access to technical information, new skills development, quality control, time management and waste reduction. Available as a standalone mobile App or online enterprise software tailored to your business or product requirements.

WorxAR software solutions are offered both online or in mobile formats that can be tailored to suit each customer and their product requirements.

WorkAR Technology Objective

- **Eliminate time wasted looking for current technical and procedural information.**

- **An interactive and intuitive method of providing up to date standard operating procedures.**

- **Engaging method of delivering training with assessment feedback.**

- **Planning and managing jobs with standard times and inventory data.**

- **Easy method for delivering and capturing job data or QC records shared on a multi-user interactive platform.**

- **Digital user manuals and product information for consumer use.**

Market Opportunities

As with all service industries, continued profitability and growth are the main goals. This is realised via improved product and service quality and operational efficiency. A clear path to achieving this is by identifying and addressing waste associated with unproductive time, excess inventory, materials handling and lack of procedural information. Capability and capacity to grow a business is also founded on the ability to build a dedicated and highly skilled workforce.

The collision and mechanical repair industry is undergoing a transformation with the adoption of digital technologies that facilitate global connectivity, greater access to critical information, lean-agile operations strategies and new modes of fast-tracked training and up-skilling technicians. A vast majority of data and business information services have moved to cloud-based platforms offering flexibility to expand and evolve features and functionality beyond what was previously imagined.

TRADIEBOT

Tradiebot is working with our customers and collaboration partners to develop future workshop solutions using Industry 4.0 Technologies. Creating and adapting modular automated systems and smart platforms that improve efficiency and drive productivity in the automotive repair environment.

Leading the way with application of technologies such as augmented reality (AR), robotics and additive manufacturing, we are developing digital platforms and automated systems that can provide knowledge when and where it's needed, fast track routine jobs, automate repairs, provide training and deliver an up-skilled workforce.

Our services integrate and evolve seamlessly with businesses, providing solutions for cost reduction, quality management and waste minimisation.

Industries need to work smarter, faster and be more agile to accommodate the rapid changes in market demand. Our systems bring knowledge and skills transfer to your fingertips whilst we develop an ever-expanding catalogue of data intelligence to be used for various applications across the automotive trade and manufacturing industries.

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