INTRODUCTION

Digitally insert something in the real world called AUGMENTED REALITY. Augmented Reality has been a hot topic in software development circles for several years, but it's getting renewed focus and attention with the development of AR headsets like Google Glass and Microsoft HoloLens and Industry 4.0. Augmented Reality is a technology that works on computer vision-based recognition algorithms to augment sound, video, graphics and other sensor-based inputs on real-world objects using the camera of your device.

UNDERSTANDING OF THE PROBLEM STATEMENT

Augmented Reality has the potential to resolve issues in the product by the user with low cost and little effort. People who have vehicles sometimes face issues with battery, air filter and changing engine oil. In such situations, our AR will help users to spot issues in their vehicles and guide them to resolve the issue in case of minor problems without the help of technicians. In case of a major issue, AR app will provide the specific technician's contact for the specific issue.

DETAILS OF TECHNOLOGY USED:

AUGMENTED REALITY

Vuforia studio can create Augmented Reality Experience for Android, iOS and AR headset. ThingMark works as a target for AR Experience in the real-world and acts as the credential for our AR Experience.

REQUIRED SOFTWARE:

- 1. PTC CREO Used to create a 3D Model
- 2. PTC CREO ILLUSTRATE Used to create 3D Illustrations
- 3. PTC VUFORIA STUDIO Used to create AR Experience
- 4. ThingMark Printout –Act as target for our experience.

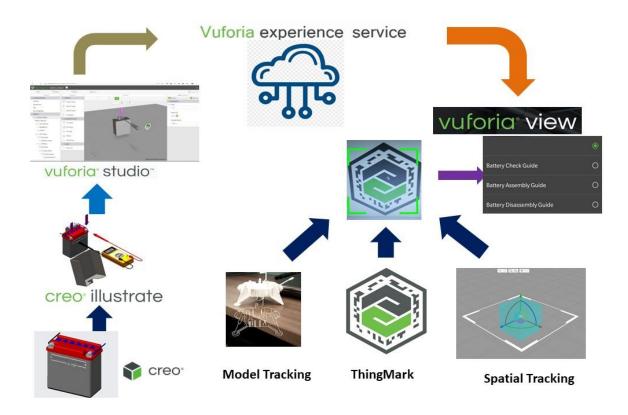
(ThingMark Link provided at end)

ACHIEVED COST SAVING:

AR leads to WIN-WIN situations for Companies, Customers and technicians. In the case of electric vehicles, Battery was an essential part of a vehicle. If we are facing issue in the battery, it costs a lot when we go out and fix in shops. But, AR will help as a repair guide and shows whether that is a major or minor issue.

In case of minor issues, we can able to solve it with AR guidance also help to contact nearby technicians for major issues. In this process, we will save money and learn how to resolve the problem.

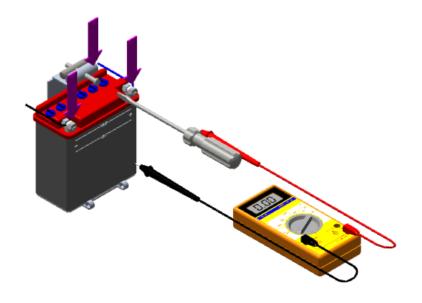
ARCHITECTURE:



SOLUTION DESCRIPTION:

Sometimes it is difficult for the customer to locate and identify the issue. It was hard to make a customer learn how to resolve issues in their appliances by printed repair manuals. By providing AR guidance it would be interesting and fun in fixing issue in their appliances.

In the case of battery, issue may be in wiring connection or in electrolyte or no power in the battery. These errors can be spotted by our AR experience and show the repair procedure. It shows a repair procedure in AR and helps to locates fault with specifications.



Battery Repair Manual Guides

BATTERY CHECK GUIDE

STEP 1: Remove Battery Lock Screw

STEP 2: Open Battery Cover

STEP 3: Check Battery Voltage Using Multimeter

STEP 4: Check Wiring Connection

STEP 5: Check Electrolyte Level

BATTERY DISASSEMBLY GUIDE

STEP 1: Remove Battery Lock Screw

STEP 2: Open Battery Cover

STEP 3: Remove Battery Connections

STEP 4: Remove Battery

BATTERY ASSEMBLY GUIDE

STEP 1: Place Battery in Position

STEP 2: Connect Battery Connections

STEP 3: Close Battery Cover

STEP 4: Lock Battery Screw

STEPS TO VIEW AR EXPERIENCE:

STEP 1: Install Vuforia View from Google Play Store.

STEP 2: Open Vuforia View App.

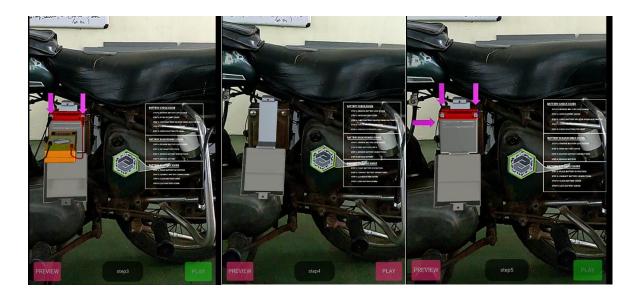
STEP 3: Switch to ThingMark Scanner.

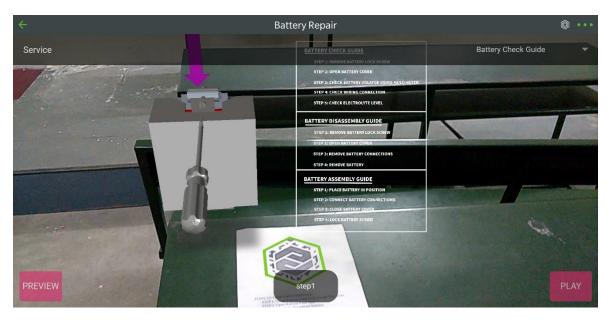
STEP 4: Scan ThingMark.

STEP 5: Choose a Service from drop down.

STEP 6: Follow Instruction shown.

PROTOTYPE IMAGES:





SCOPE OF AUTOMATION:

AR can be easily integrated with IoT platforms. By using real-time data, issue in our products can resolved at time of occurrence and guides to locate them as soon as possible. It also helps to contact nearby technicians in real-time based on customer and technician's location. Vuforia Studio has capability to integrate with IoT platforms like ThingWorx.

PRESENTATION VIDEO LINK:

https://youtu.be/B fvGQ1fSZA

GOOGLE DRIVE LINK FOR THINGMARK:

https://drive.google.com/drive/folders/1BcwvdYLkOnGATP3C-sxpxlKdVwF0Phqo

CONCLUSION:

AR is transforming the way of product service. AR integrated with IoT platforms opens whole new way of opportunity in digital world. XR transforms manufacturing, service and training processes in current digital era.