

Virtual Auto Mechanic

V1.1

User and Customer Support Guide



Shenzhen GTA Education Tech Ltd.

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1. Introduction

1.1. Objective

This manual provides installation and operating guidance for users of Virtual Auto Mechanic V1.0.

1.2. Background

1. The software is named Virtual Auto Mechanic. The current version is 1.0.
2. The software is packaged by Shenzhen GTA Education Tech Ltd. and developed by GTA 3D Production Development Center. The software is used on zSpace devices.
3. The software includes the disassembly simulation of four modules: engine, transmission, suspension, and brake, and includes motion display of the air distribution box, engine working principle, independent suspension, air conditioner compressor, and steering system.
4. The software application provides online registration. Users can activate the application with the provided activation key to enter the software operation interface. When activating the application, a network connection is required to verify the key. The software must be operated on zSpace devices.
5. The software application can also use **zView** to enhance the teaching and learning process.

2. Purpose

2.1. Function and Features

Type	Name	Description	Notes
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Disassembly Simulation	Engine	Simulation of the disassembling process of the engine, including disassembly of the whole machine and disassembly of its sub-components	
	Gearbox	Simulation of the disassembling process of the gearbox, including disassembly of the whole machine and disassembly of its sub-components	
	Disc Brake	Simulation of the disassembling process of the disc brake	
	Front Suspension	Simulation of the disassembling process of the front suspension	
Motion Principle	Engine, Air Distribution Box, Air Conditioner Compressor, Suspension, Steering System	Simulation of the internal operations of the engine, air motion in the air distribution box, working mechanics of the air conditioner compressor, motion display of the independent suspension during single-wheel travel and two-wheel travel, as well as the working mechanics of the steering system	

3. Operating Environment

3.1. Hardware Environment

Please know that GTAFE conducts formal testing only on zSpace 300 devices.

CPU	Intel Processor 500GB Hard Disk 8GB RAM
Graphics Card	AMD FirePro W5170M
Resolution	1080p
Display Size	20.5' H * 11.5' V, 23.6' D (52.07 cm * 29.21 cm * 59.94cm)
Rise Time / Fall Time	Tr: 1.3 ms Tf: 4.3 ms
Power Requirement	19 V, 200 W Power Adapter
Hardware Device	Power Adapter Stylus Pen Polarized Glasses (3D and 2D) Mouse Keyboard

Space Requirement	Height: 9-15' (24-39cm) Width: 25' (64cm) Depth: 10-20' (27-52cm)
Environment Requirement	Temperature: 10-35°C Humidity: 10-80%NC
Cables	USB 2.0-3 Ports USB 3.0-2 Ports Audio Input / Output Port HDMI Port Supporting Ethernet Connection Operation Pen Port DC Power (19V)

3.2. Software Environment

Operating System – Windows 10 (64-bit)

4. Operating Procedures

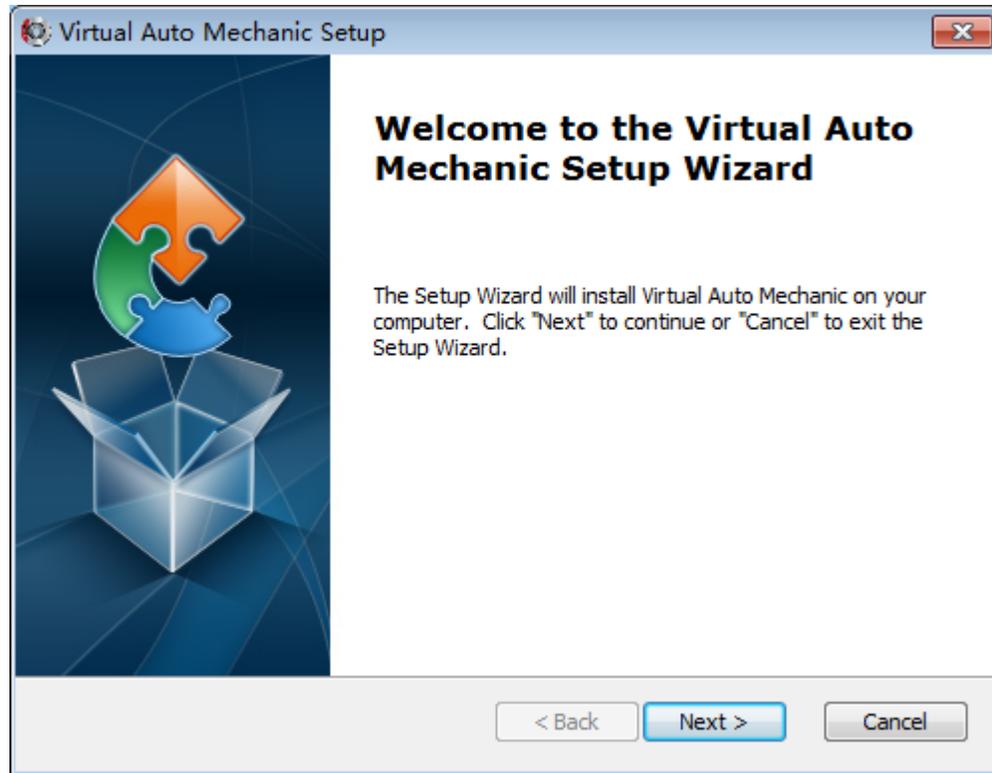
4.1. Installation and Initialization

Before installing the new version of the application, uninstall any existing versions manually. The version number has been reset to 1.0 for this release. If you receive a

prompt stating that a newer version is already installed on your system, stop the current installation and uninstall any existing applications from your system. If the warning 'Windows protected your PC' appears, click 'More Info' and then 'Run Anyway' to continue your installation.



Double click the software installation setup package to enter the installation interface as shown below. Select 'Next' to install or 'Cancel' to terminate the installation. Users can continue the installation process by following the instructions.



4.2. Software Registration

Double click the application shortcut icon on Windows Desktop to launch the application and enter the registration interface. Retrieve the product key from the product management center. Enter the product key and select 'Activate License' to start using the software. The license activation requires a network connection to verify the key. The registration interface is shown below.



4.3. Application' s Operating Instructions

Upon entering the main interface following registration, use the stylus to sense the corresponding items on screen, and press the middle button of the stylus to select and enter the corresponding modules. This software application contains two modules: automotive principles and automobile disassembly. Select the module to enter. The interface is shown below.



Click  or  to switch between the Principle module and the Disassembly module. Move the stylus over the options to show the description of the current module.

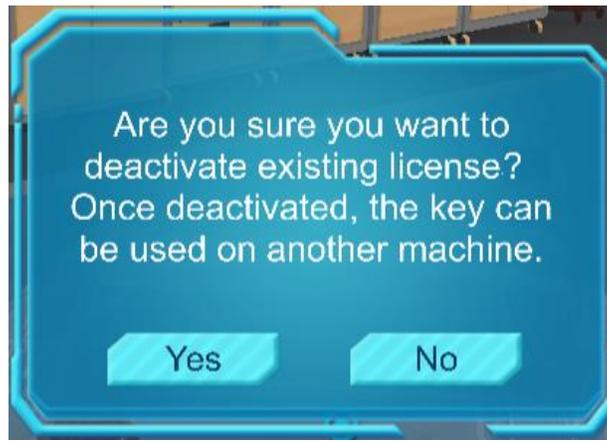


Click  to enter the 'Settings' interface shown below.



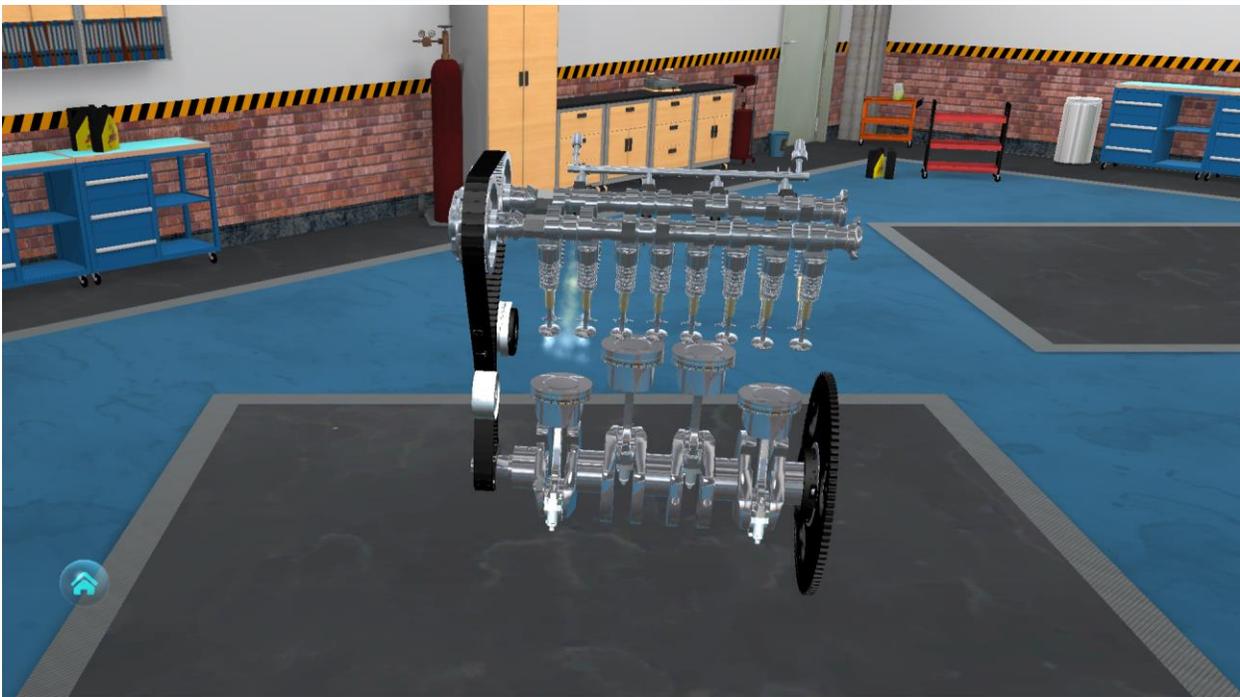
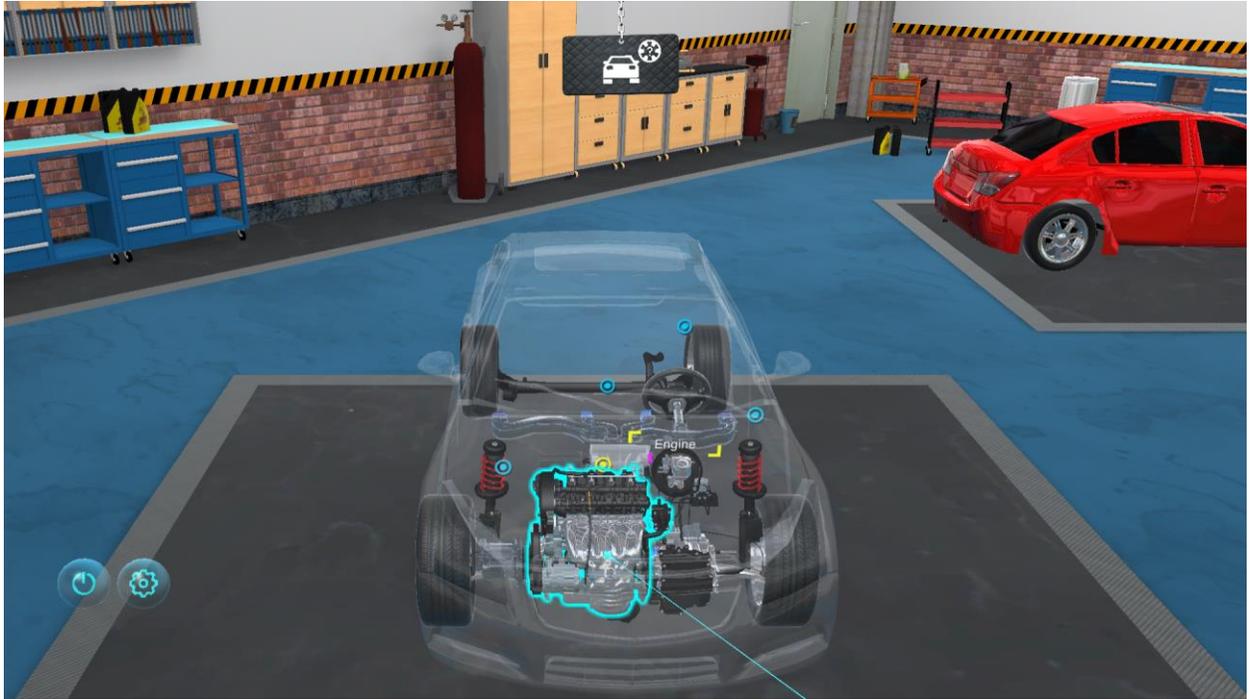
Users can set their own operating preferences for stylus vibration, the position of the prompt panel, pupillary distance, tip flash duration, and stylus beam length.

Users can find their license and version information at the bottom of the settings UI. In the license management section, users can also stop using the existing license. By selecting **Deactivate License**, the following confirmation message appears. Select 'Yes' to deactivate the license, or 'No' to continue using the license. Deactivating the license requires a network connection to recycle the license key.



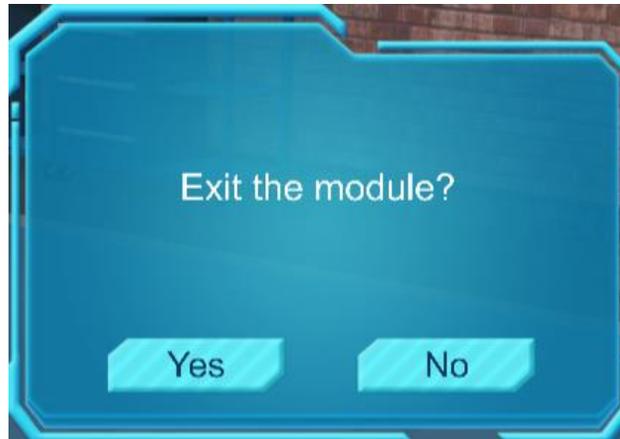
➤ Introduction to the Principle Display

When the stylus is moved over the corresponding module, the module will be highlighted. Press the middle button of the stylus to enter the module. The interface is shown below.



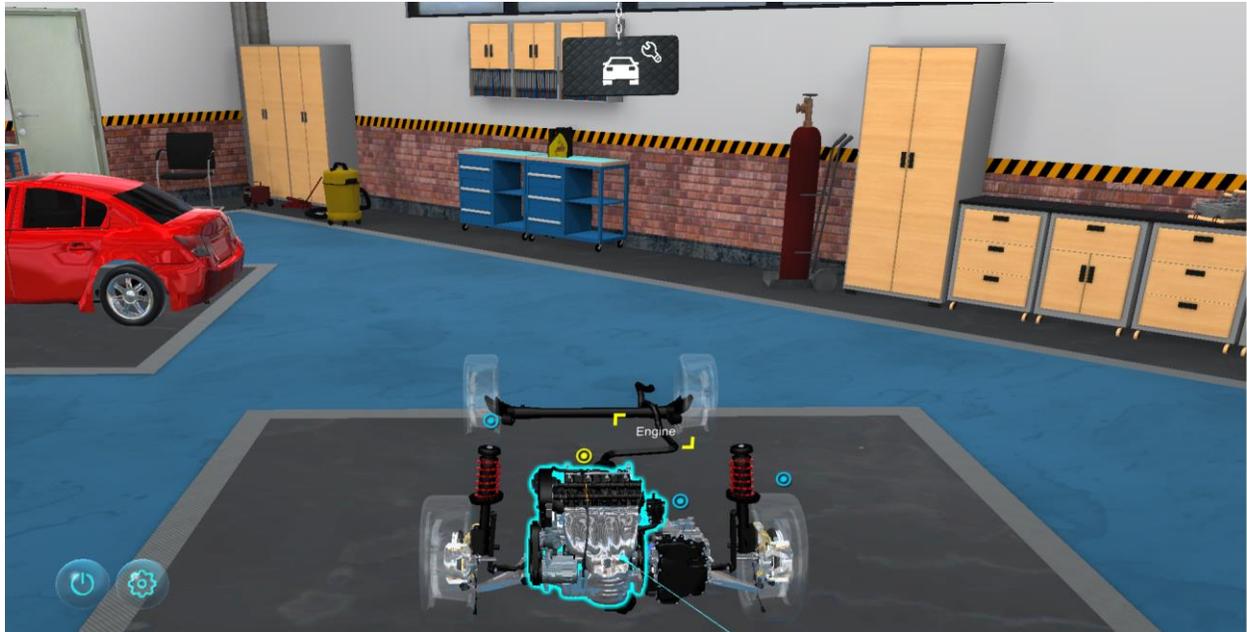
In the principle display interface, press and hold the middle button of the stylus to drag and rotate the corresponding part, and to view it in different angles. Press and hold the right button of the stylus and drag the model in and out to resize.

Clicking  will show the following confirmation message. Select 'Yes' to return to the main page and select 'No' to stay in the current page.



➤ Introduction to the Disassembly Simulation

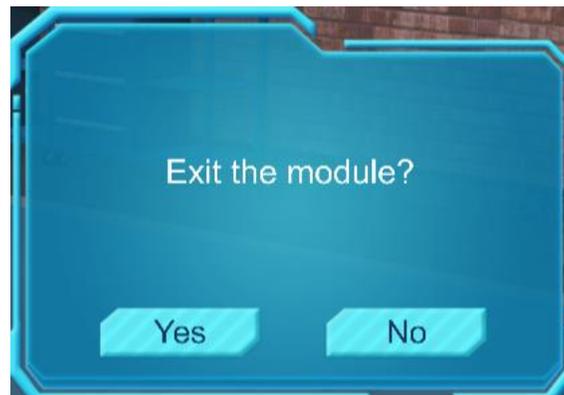
Click  to switch to the main interface of the disassembly simulation. When the stylus is moved over a corresponding module, the module will be highlighted. Press on the middle button of the stylus to enter the module disassembly interface shown below.



The disassembly interface layout is as shown in the picture above. On the left, the parts rack is composed of components and fasteners. When the disassembly is completed, all parts will be returned to the rack automatically. The middle panel is a prompt box which shows the operating details of the current step. On the right, the tool rack contains

common tools and special tools. Press the middle button of the stylus to enter the corresponding interface. When the interface of the parts rack, prompt panel, or tool rack is pointed at by the beam of the stylus, press the middle button of the stylus to drag the selected part. In the disassembling process, the stylus will vibrate to show an incorrect match of the tool and part. An explanation of the function of the remaining buttons is provided below.

Clicking  will cause a confirmation message appear. Select 'Yes' to return to the main page or select 'No' to stay in the current page.



Click  to reset the current progress to the initial starting point. When there is no progress made in the module, the reset button is grayed out and there is no response to a press of the middle button of the stylus.

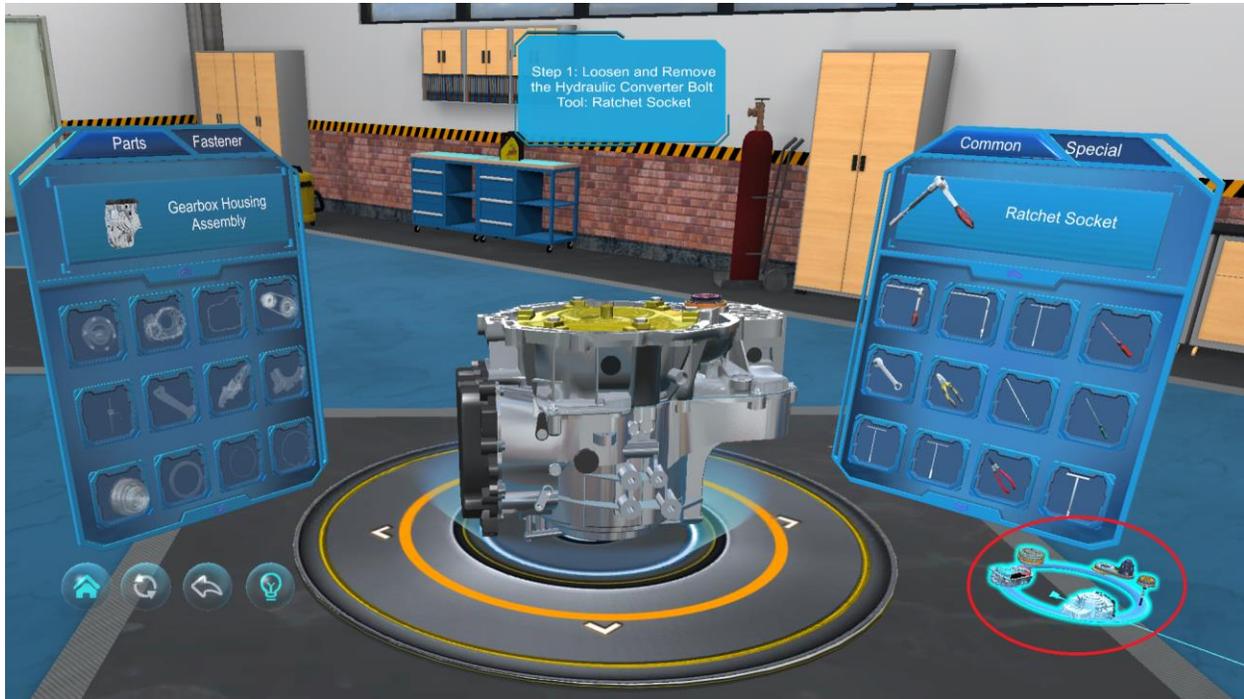
Click  to undo the previous step. When there is no progress made in the module, the undo button is grayed out, and there is no response to a press of the middle button of the stylus.

Click  to highlight the disassembly area, the location of the parts, and the required tool as shown below. The parts marked with red circles are prompts for the current step.



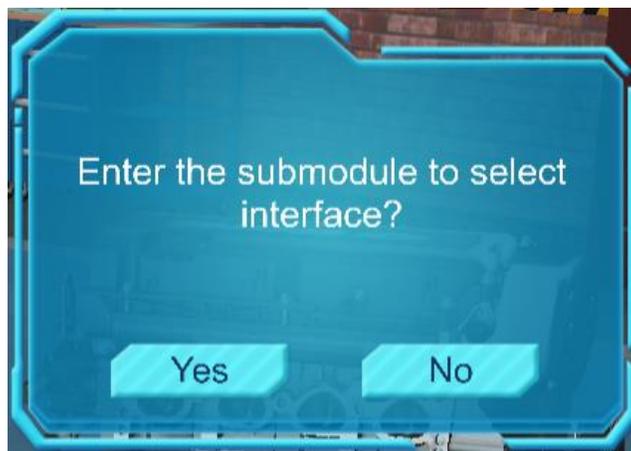
➤ Introduction to the Sub-assembly of the Engine and Gearbox

The simulation of the disassembling process of the engine and transmission gearbox includes the disassembly of its sub-components. Compared with the brake and suspension interface, this interface adds an assembly switch button. The interface is shown below.



Move the stylus into the area within the red circle to highlight the sub-components.

Selecting a submodule will have the following confirmation message appear.



Select 'Yes' to enter the submodule selection interface or select 'No' to stay in the current page. The submodule selection interface is as shown below.



Move the stylus to the submodules to select the corresponding module. The selected module will be highlighted and the prompt panel will present the name of the current module. Press the middle button of the stylus to enter the disassembly interface. This disassembly interface is the same as the above-mentioned disassembly interface, so the description is omitted here.

5. Using the Stylus and Keyboard Shortcuts

1. Press and hold the middle button on the stylus to select and to drag or rotate the model.
2. Press the middle button on the stylus to pick up and use tools.
3. Press and hold the right button on the stylus to select and resize the model.
4. Use **Ctrl+X** to start **zView** to enhance the teaching and learning process.
5. Press the **R** key to reset.