Online simulation tools

Gazebo Simulator:

The Gazebo simulator is a tool for 3D dynamic simulators to design and develop robots.It replicates the force, gravity, and life conditions based on physical theory and laws. It allowed the integration of the sensors and actuators in the 3D models and we directly tested and run the simulator in the operating system. It allows to simulation of the model using physical conditions like rotation through axial rotation through the X, Y, and Z axes. Limitations of the Gazebo simulator are It is not accessible in Windows only access in the Linux and ubuntu operating systems. This simulation uses plugins to integrate physics

installation:
It does not support in the windows
alternative - Linux, ubantu

Cyberbotics (Webots):

Cyberbotics is a simulation to design and develop the robots. It is a complete development environment. We design the prototyping of the robots in 3D models using physics properties like mass, gravity, friction, etc... It is an open-source software we have to modify and use. It is the 3D design model simulator. Programming languages-C, C++, python, java, MATLAB, ROS(Robotic operation system). It supports industrial robots, humanoid robots, drones, and underwater robots. Usage of the simulation Robots design , testing, algorithm development,Prototyping.

Installation:
it supports windows, Linux, macOS
install using the direct download of the setup

VR.vex.com :

VR VEX is the simulator which is use in the VR model designing. It demonstrate the virtual robots to perform the given task. It is the 3D designing tools for the Robotics. It is the simple format of design the robots using drag and drop of the pre build function with conditions, loop, event and other logical operations also in pre-build in the simulator. We use this simulation through the web browser no need to install the simulator.

Robotics virtual world(RobotC):

It uses the RobotC language to develop the robots in this simulator. This simulator

has various concepts and operations on its own like a loop, condition logic, functions, variables, and data structure. It allows to virtual sensor for detecting and testing the virtual robots. It is a 3D model designed for the working model like the changes and adding additional working functions for the pre-developed robots. It uses the physical condition of the environment and designs the model of robots. It is mostly based on the industrial purposes of robots

Installation:
using the website directly to download the simulator

Coppelia simulation :

Coppelia simulation is used for simulating robotics systems, testing algorithms, and developing robotics applications, from simple projects to complex industrial applications. It integrated the physics concepts in the simulation to develop the robots. We allow creating the customized components in the simulation like sensors and actuators. It supports the method of drag and drop of the components in the simulation. it is based on the control system of the robots. it helps to test and design industrial robots. It is used to identify problems and rectify them and to monitor the automation

programming language:
C/C++, Python, Java, Lua, MATLAB, octave

Installation:
through official website

TinkerCAD:

it is an electronics based development simulation. It allow the 3D modelling of the robotic machines and circuit designing. In the simulator have the various components which is used to connect the circuit and electronics board wit the micro controller. It also have the block of code to create the algorithm for design and development of the robotics. It allows to share the designs through the cloud and community library. it helps to design the electronic circuit in a digital manner. Drag and Drop the designs are development. This simulation is run in the web browser and no need to install.

MATLAB (Simulink 3D Animation):

>Used designing and developing the Automotive, Aerospace, Robotics, and industrial manufacturing units
>3D environment using the physical properties

Installation: