Amrutvahini College of Engineering, Sangamner

Department of Information Technology

Case Study

Innovative pedagogy Methods on Tinkercad

Subject: Internet of Things **Class: TEIT** **Subject I/c: Er. Bhosale R.S.**

1. Technology Integration

Utilizes technology creatively to enhance effective learning experiences, incorporating digital tools and resources for effective and interactive instruction.

Ex: Tinkercad Tool for IoT Practical Examples.

Tinkercad is IoT tool in which student can understand and Implement different IoT components as well implement IoT Project. All basic and advanced components of IoT are available in this tool. Components if physical not available for practical and connectivity can use this tool as simulation of project through Arduino.

Tinkercad is a free, web-based 3D modeling program that allows users to create digital designs for 3D printing. It's known for being easy to use and is often used by educators, and hobbyists, Engineering Students.

Here are some things you can do with Tinkercad:

- **Create 3D designs**

  Use premade shapes to build solids and create unique designs.

- **Design circuits**

  Use Tinkercad's built-in circuit features to add motion and light to your designs. You can start with a starter circuit or build your own using premade wire components.

- **Learn the basics of solid modeling**

Tinkercad is a great way to learn the foundation of solid modeling, which is the practice of building objects with primitive shapes.

- **Use lesson plans**

Tinkercad offers free lesson plans for a variety of subjects, including art, computer science, design, electronics, engineering, language arts, math, and robotics.

- **Use codeblocks**

Build a coding foundation by dragging and dropping blocks of code to form a stack of actions. You can then run your code to see your creation in the 3D Viewer.

Example: Here Rotation of Servo motor shown by using Virtual IoT Components through Tinkercad Tool.

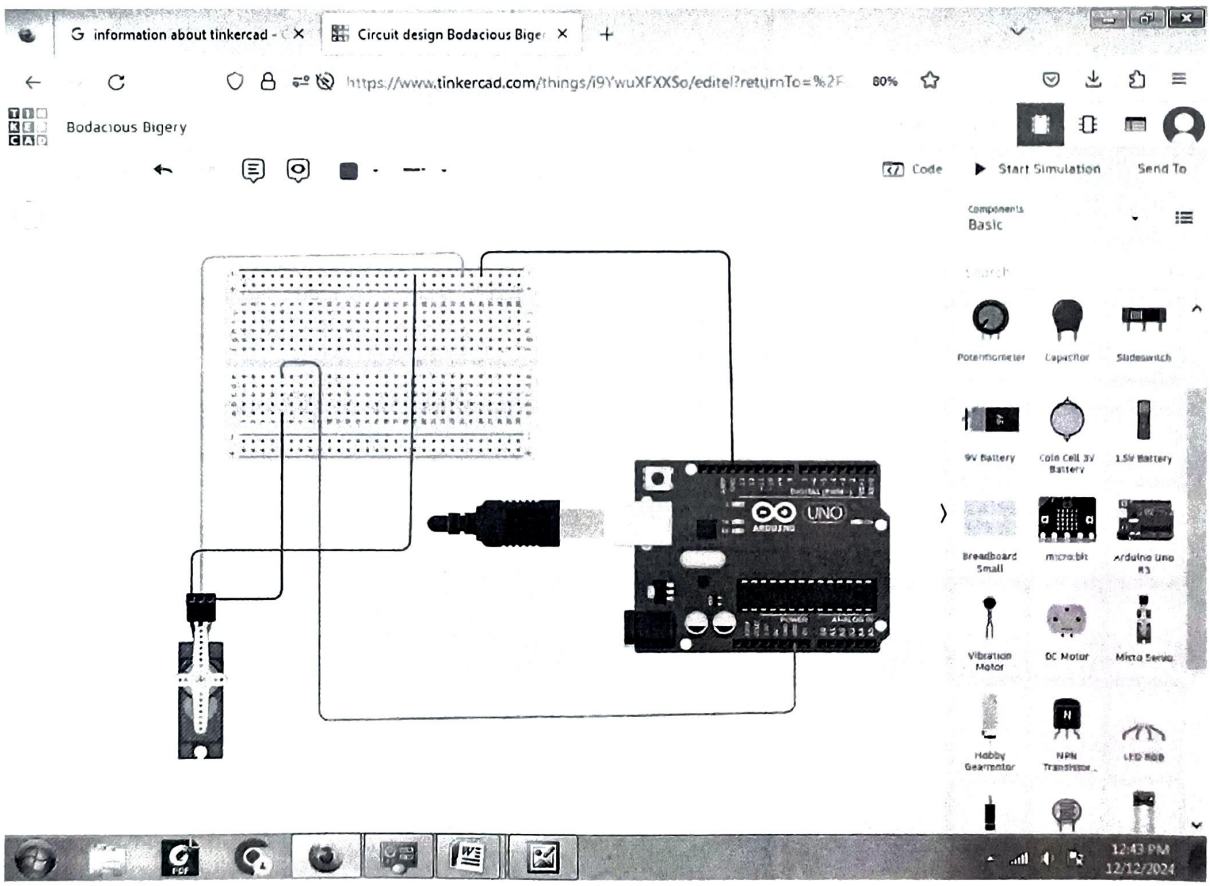

Fig. 1 Using Tinkercad Implementation Rotating Servo Motor using Arduino

Like such Different Projects can built through this as shown in below figure 2.

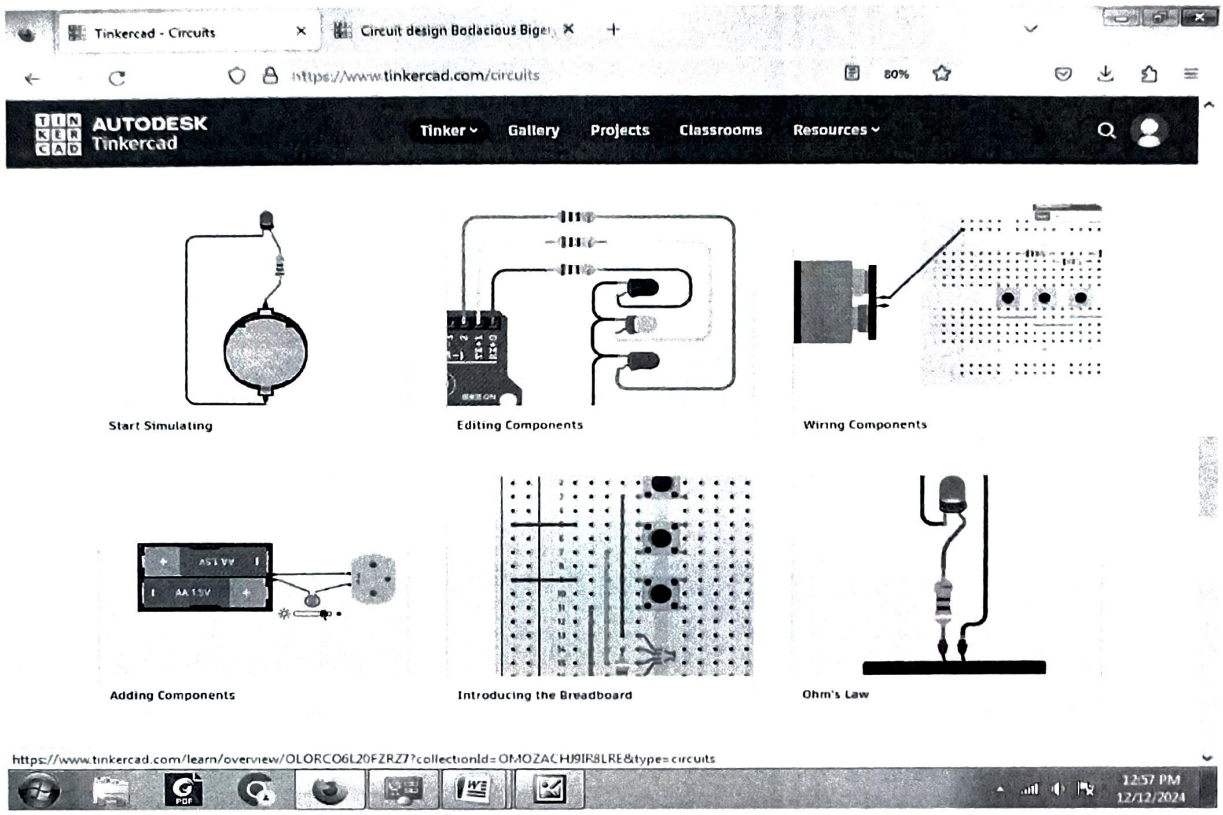

Fig.2 Different project Simulation through Tinkercad

Hence Tinkercad.com, amongst other things, provides an easy to use environment to emulate Arduino Uno devices along with connected virtual hardware components and is controlled by Arduino sketch code. Whilst the platform is a useful tool for learning, since it does not provide a means of communicating with the outside world, as soon as a project requires any form of communication with Internet enabled services, using physical hardware (or other means of emulating/simulating Arduinos).

Er. Bhosale R.S.
Subject Incharge

Dr. Gunjal B.L
HOD I. T.