DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

EXPERIMENT 1.3

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Branch: BE CSE
Section/Group: 20BCS_DM_607-A
Semester: 6TH
Subject Name: Internet of Things Lab
Subject Code: 20CSP-358

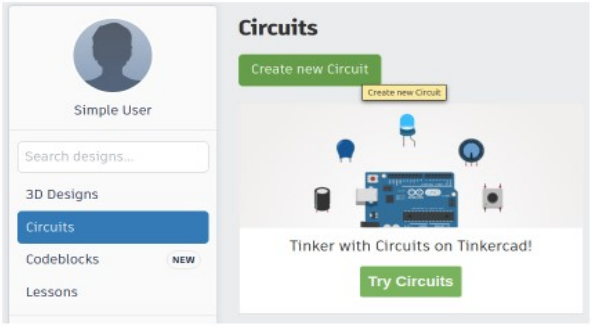
Aim: -Demonstration of Autodesk Tinkercad Simulation Platform.

Requirement required: -

1. Learn about IoT based simulations.
2. Testing and model in IoT based simulation platform.

Tinkercad: https://www.tinkercad.comis an excellent tool that allows you to simulate Arduino-based systems (and a lot more). You can (perhaps you SHOULD) simulate all exercises and even your own designs before trying them on real hardware. It also allows you to do programming using blocks. You can download / copy-paste the generated code later into Arduino IDE to program the real Arduino board, rather than having to write it from scratch.

Create a new personal account on Tinkercad website (you can also use your Google account to log in). Then select Circuits on the left pane, and click Create new Circuit.



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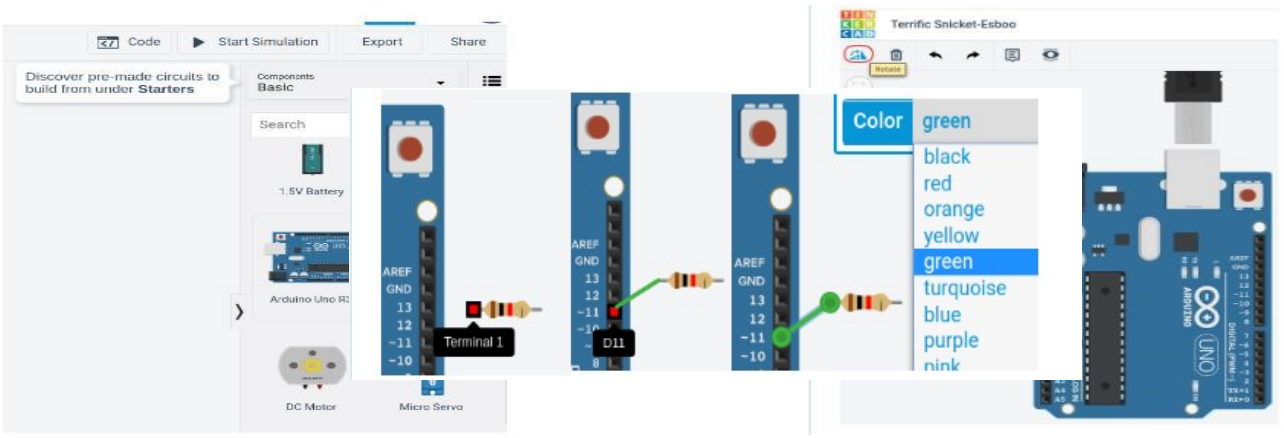
Hardware

In Components Basic, you can select Arduino Uno R3.You can add more components and wire them up as desired. Clicking on the lead of a component allows you to start a connecting wire from there. Clicking on a wire allows you to change its colour.



Programming and simulation

1. Click on Code
2. You can choose Blocks or Blocks+Text or Text*. For beginners, it is recommended to use **Blocks + Text**.
    1. This allows you to see the C++ code generated corresponding to your blocks.
    2. You can copy this code later into Arduino IDE to program the real Arduino, rather than having to write it from scratch.
    3. You can also download the code as an Arduino-compatible .ino file.
3. You can code by selecting the blocks and connecting them appropriately.
4. You can start the simulation by clicking Start Simulation.

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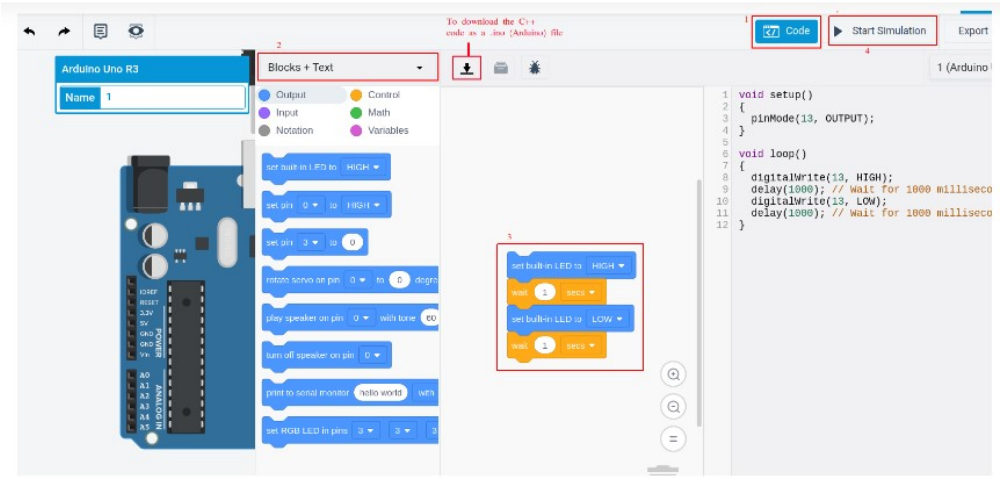
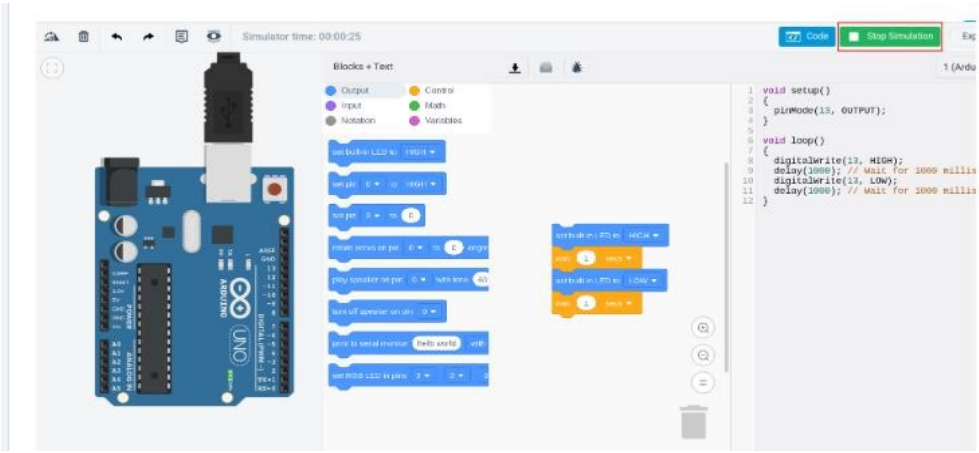


5. You have to click Stop Simulation to stop the simulation before you can modify your program and/or hardware connections.



Learning Outcomes:

1. Learned about tinker cad.
2. Learned to virtually simulate IOT devices using Arduino.
3. Programming of the Arduino board.