Chapter - 15 Robotics coding VEXcode VR - 1

Objective :

- Introduce students to block-based programming using **VEXcode VR**.
- Teach students how to use **sensors** (specifically, the **Distance Sensor**) to detect obstacles and make the robot respond dynamically.

Simple projects, including sensing-based tasks, to reinforce learning

Skills to be attained : Coding to move the robot

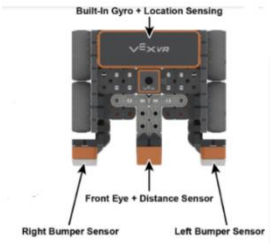
Tools / Websites / Resources :

1. https://www.vr.vex.com//

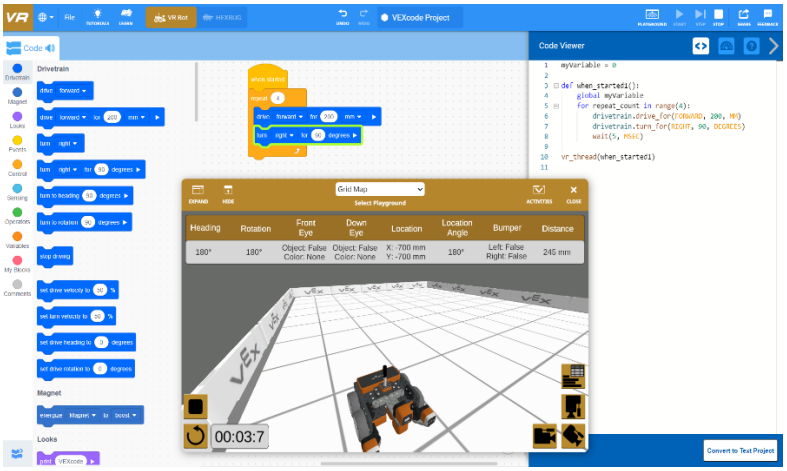
Teacher Led Instructions :.

1. **VEXcode VR** is an online, block-based coding platform that allows students to program a virtual robot and see the results in real-time in a virtual environment. It's designed to teach the basics of programming and robotics through an interactive interface.
    - It allows users to code a virtual robot in a virtual environment: It offers two coding environments:
    - Block-based: Powered by Scratch Blocks, this environment and Text-based: Uses Python directly in the browser It consists of virtual Playgrounds with their virtual robot
2. **Key Components of VEXcode VR**:

It consist of a **Virtual Playground** where the robot operates and the virtual robot comes with various built-in sensors (like the **Distance Sensor**, **Gyro Sensor**, and **Bumper Switch**). The robot can be programmed using block based code or using python to move, turn, detect objects, follow paths, or draw shapes.



VEX code Screen



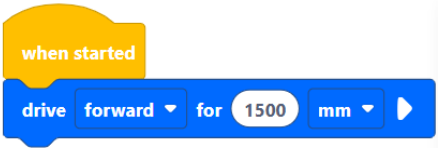
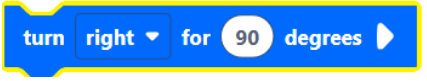
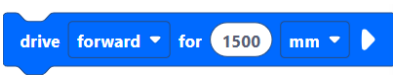
Program 1: Moving Forward and Turning

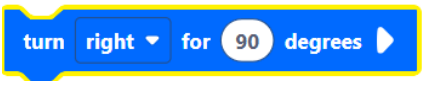
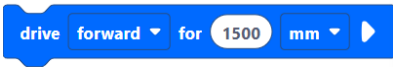
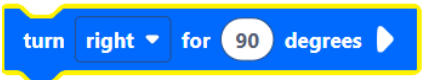
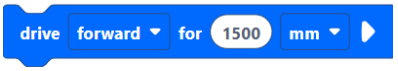
Objective: Program the robot to move forward and turn after a set distance.

Steps:

1. **Open VEXcode VR** (https://vr.vex.com)
2. **Select a Playground**:
3. Choose the **Grid Map** playground from the playground dropdown. 

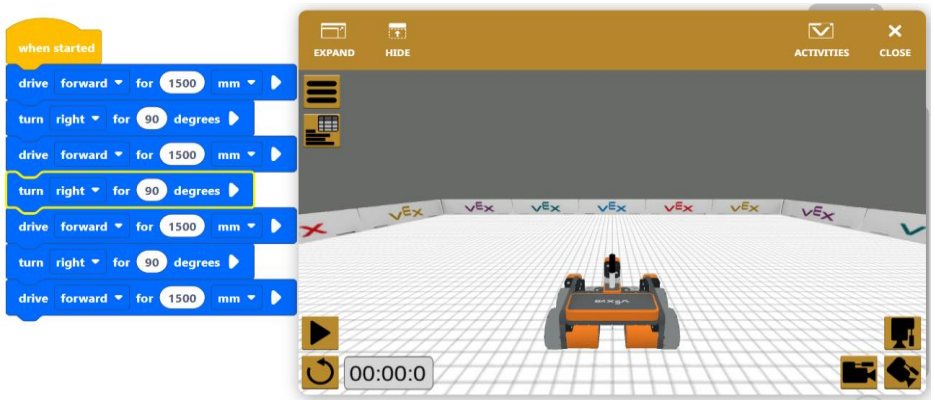
on the top right of the tool bar. **Drag Blocks to Workspace**:
    - From the **Drivetrain** category do the following

Step No	Action	Block with value
1	Drag the **"Drive Forward"** block into the workspace.Set the distance to 15**00 mm**.	
2	Drag the **"Turn Right"** block below the **"Drive Forward"** block.Set the turn to **90 degrees**.	
3	Drag the **"Drive Forward"** block into the workspace.Set the distance to 15**00 mm**.	

4	Drag the **"Turn Right"** block below the **"Drive Forward"** block.Set the turn to **90 degrees**.	
5	Drag the **"Drive Forward"** block into the workspace.Set the distance to 15**00 mm**.	
6	Drag the **"Turn Right"** block below the **"Drive Forward"** block.Set the turn to **90 degrees**.	
7	Drag the **"Drive Forward"** block into the workspace.Set the distance to 15**00 mm**.	

4. **Run the Code**:
    - Press **Start icon** in the tool bar and observe the robot moving forward and then turning right.

Output



Conclusion : Students will learn how to operate a robot by their coding. VEXcode gives them an idea about it.