ACTIVITY SHEET

Road Sign Detector

In this session, we are going to create a script in PictoBlox that detects different road signs from the camera and displays them in the LED matrix of quarky. Also, it speaks out the name of the sign detected.

This activity sheet belongs to _____

MATERIALS REQUIRED

☐ Computer/Laptop/Tab with PictoBlox installed
☐ Quarky Robot
☐ USB Cable

STEP-BY-STEP

1. Let's begin by first connecting Quarky to PictoBlox.
   1.1. First, connect **Quarky** to your laptop using **USB cable**.
   1.2. Open **PictoBlox** and create a new file. Select the coding environment as **Block Coding**.
   1.3. Select the Board as **Quarky**. Next, select the Serial port to connect Quarky and press Connect.
2. Go to the Events palette and add a **when flag clicked** block into the scripting area.
3. Now, to detect the traffic signs, we're going to add the Recognition Cards extension by clicking on the **Add Extension** button.
4. Add a **turn () video on stage with () %** transparency block below the **when flag clicked** block.
5. Add a **() bounding box** block. *When we display the traffic sign in front of the camera, this block will create a bounding box on the stage, around the traffic sign that it will detect*.

Recognition Cards
Identify objects using pre-trained cards

STEPS 2-5

6. Add a **set detection threshold to ()** block. Here, the numbers displayed in the dropdown are the confidence level. The default value of confidence is 0.8.
7. Go to the Control palette and add a **forever** block below the **set detection threshold to ()** block.
8. Inside the **forever** block, add an **analyse image from ()** block. Here, *Camera* is set as the default source.
9. Add an **if () else** block below the **analyse image from ()** block from the Control palette.
10. Add an **is signal () detected?** block from the Recognition Cards palette into the if-condition. Here, "Go" is the default option.

11. If the system detects the "Go" traffic sign, we want it to display "Go" sign on the Quarky LED matrix and also say out loud: "Go". For this -:

    11.1. Go to the Display palette and add a **display matrix as ()** block below the **if** arm of the **if-else** block.

    11.2. Draw the "Go" sign as shown in the image.

12. To play (speak) the name of the traffic sign on Quarky's speaker, we use the Speaker palette.

13. Add a **play sound () until done** block from the Speaker palette below the **display matrix as ()** block. Select "Go Straight" from the drop-down.

14. Now, we also want our **Road Sign Detector** to detect other signs, apart from 'Go' sign. So let us include detection for other signs as well.

15. Duplicate this **if () else** block and add this duplicate block, below the **else** arm of the first **if () else** block.

16. Now, change the sign in **display matrix as ()** block to left arrow and in **play sound () until done** block, change the dropdown to "Turn Left".

17. Similarly, create the script "Turn Right" sign.

18. Finally, below the **else** arm of the third **if () else** block, drop a **clear screen** block from the Display palette.

SAVING THE PROGRAM

Save the project file as **Road Sign Detector.** Check page 3 if you missed how to save the project.

FINAL SCRIPT