Lesson 21 – Learning Code’s Emotions & Sensing

A Word about Emotion Blocks

Codey has a 8 x 16 LED matrix display.

Besides using it to speak to us, it also acts as its face to show us its emotions (ex emotion of being surprised or angry).

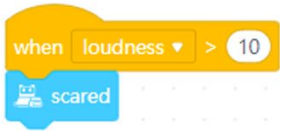
Emotion blocks have 26 of such fixed emotions that its display can show.

We can also make & store our own emotions. We will learn this in Level 2.

Project 49. Working of Sound Intensity Sensor

When Codey's inbuilt sound intensity sensor, hears a sound greater than the specified sound level, it triggers some action like saying something or raising an alarm.

A sudden loud sound like a horn or blast can scare anyone.
Since Codey cannot speak, he expresses himself using his emotions.
It does so by showing his emotion of getting scared



With this, we welcome you to The World of Sensors
You could not have done this using a sprite

Project 50. Working of a Gyro Sensor

Codey has a built in Gyro sensor which checks changes in its orientation.

If it is moved left & right it will sense this movement
& report it to us, by showing the emotion of feeling dizzy.

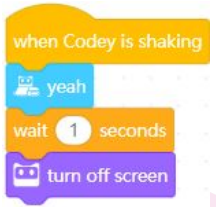
It could also report this variation to say a motor which could then take action to counter the move & keep the object stable.

While gyro control has lots of applications, we will use it to control the video games we make in level 2.

Project 51. Codey Expresses Enjoyment & says Yeah when Shaken

This is another Gyro project. When Codey is Shaken, he is enjoying its To & Fro motion.

This motion is sensed by its gyro sensor & given as an input, that triggers its reaction using the yeah emotion block, which is shown on its display.
After 1 sec, the screen turns off.



Important Learning

In the world of automation, sensors, constantly monitor the environment to check a condition.

When that condition becomes true
they send an input to the code.

This in turn, triggers a response.
The response is as desired & coded by us.

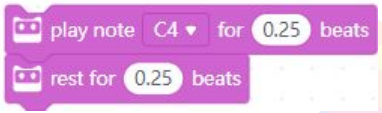
Speaker Blocks.

Codey cannot really speak, but he can do a lot, by making some sounds & creating musical notes.

He does this using speaker blocks. We have four categories:

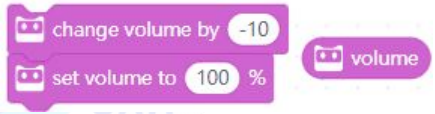
1. **Play & stop sounds.**

2. **Play standard musical notes.**



3. **Play frequency specific notes.**

4. **Volume controllers.**



See all dropdown options
We shall learn categories 2 & 3 in level 2

Project 52. Codey Plays Predefined Sounds.

Since Codey cannot speak properly, he has learnt to say 42 words & sounds.
He is learning more.

Till then, make & run the attached code.

Scroll to see Codey Sounds.

Project 53. Codey learns Sequencing

Concept of sequencing in devices is same as in sprites.

It involves placing of blocks one below the other.
Try out this code.

Making of image on LED matrix
will be learnt in level 2.

Try making some similar sequences on your own.

Project 54. Codey Plays Happy Birthday Song.

See the code run.

Make the same yourself.

Project 56. Codey mimics an Ambulance

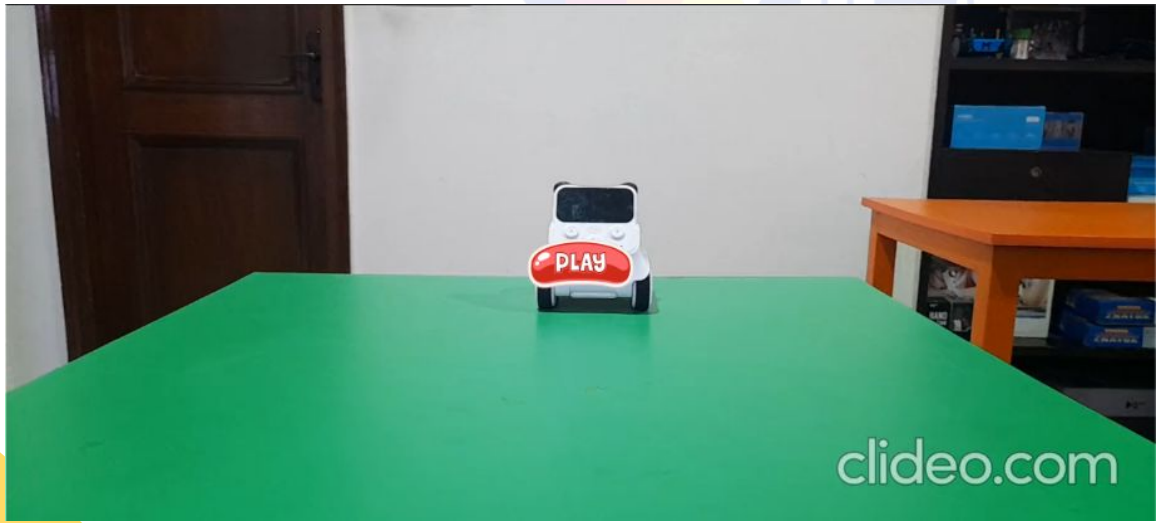
First think how you will make this code.

Try yourself even if you make mistakes.

Hint - When button:

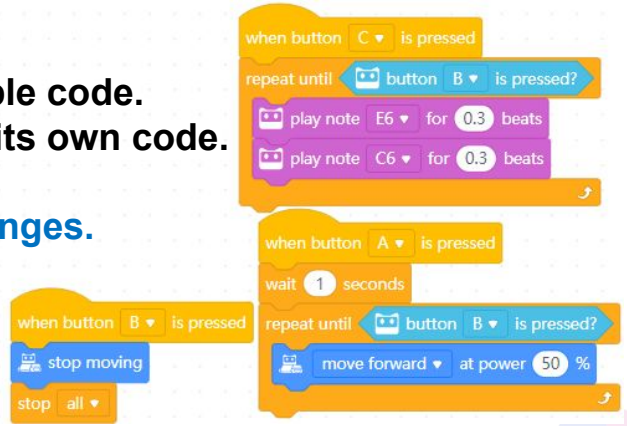
- C pressed, it starts siren.
- With A, it also starts moving.
- With B, it stops all.

Now see it perform.



Now see a possible code.
Each button has its own code.

Practice with changes.



Project 57. Codey works as a Timer

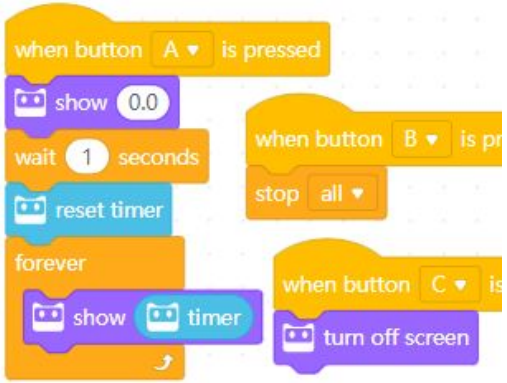
Any timer needs a start, stop, reset & turn off.

Hint: Any timer needs a start, stop, counter reset & turn off.

Try doing it yourself.

Hint:
In this code when button:

- **A pressed, it resets. timer & then starts it.**
- **With B, it stops.**
- **With C, it turns off the screen.**



Project 58. Codey moves around in a circle.

Think how it will be done?

Hint: The power on the wheels should be different.

Reason why?

Try doing yourself.

Project 59. Codey teaches children geometry by moving in different geometric shapes.

Codey shows shapes:

- **Square when button A is pressed.**
- **Rectangle when B is pressed.**
- **Equilateral Triangle when C is pressed.**

Think how it will be done.

See the video

Now try & make the code.

Codey Rocky offers limitless learning opportunities.
We shall keep learning these in all the three levels of Scratch.

Takeaways…

- Codey is a pre-assembled robot. Its code needs to be written on a PC, & then uploaded & played.
- It should be saved to our PC with a name for re-use.
- It has three programmable buttons to trigger the codes.
- It has a few internal sensors that monitor the environment & trigger the output instructions of the code.

Time to Do.

Kindly go through all the projects yourself until all the involved procedures become clear.

End of Lesson 21

Code Karega India Badhega