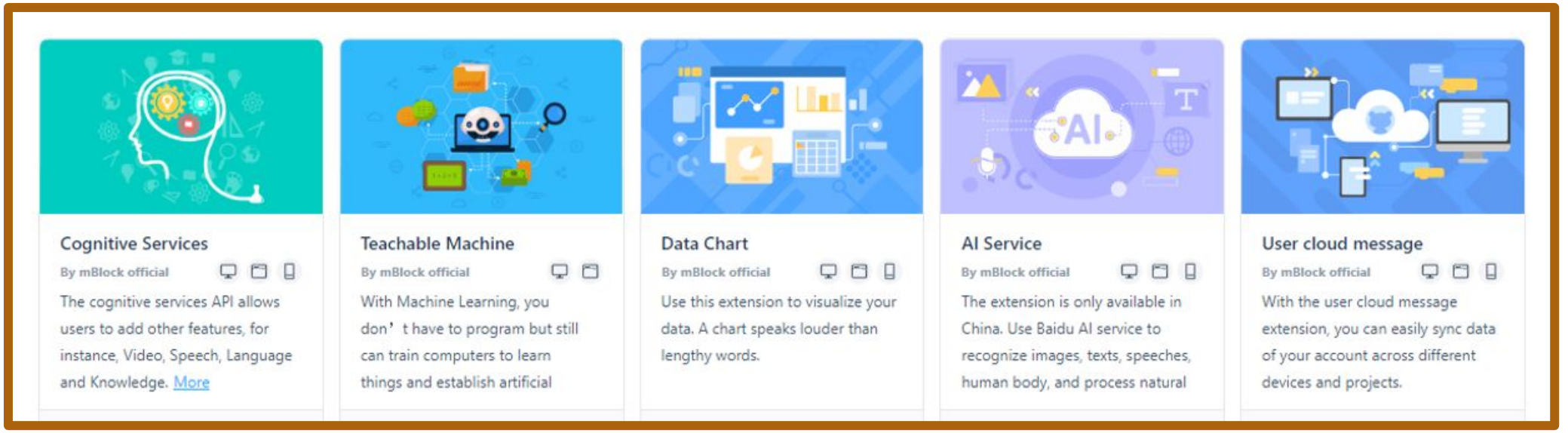
Lesson 1 – Introduction to Scratch Block Extension



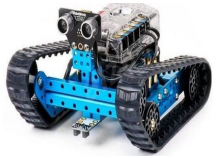
Need for Scratch Extensions

Functional capabilities of learning scratch using sprites is **limited.**

To broaden the capabilities we need to enter the three dimensional **World of Real Devices.**

Extensions **allow us to connect** scratch to external hardware like:

- Real robots.



- Boards.

- Apps.

- Plugins etc

Extension Blocks

These are colour coded **in different colours**

Dependant on the extension service you select**.** They allow you to:

- Expand your learning from a virtual world to a **real world.**
- Make it possible to connect Scratch projects with **external** hardware.

They **add a collection** of command and reporter blocks.

These are then used to **interact** with a particular device or data source.

Types of Block Extensions

We have two types of Block extensions:

- Block extensions for Sprites
- Block extension for Devices.

The functional procedure of both is similar.
Do have a look at both.

What is Sprites Block Extension

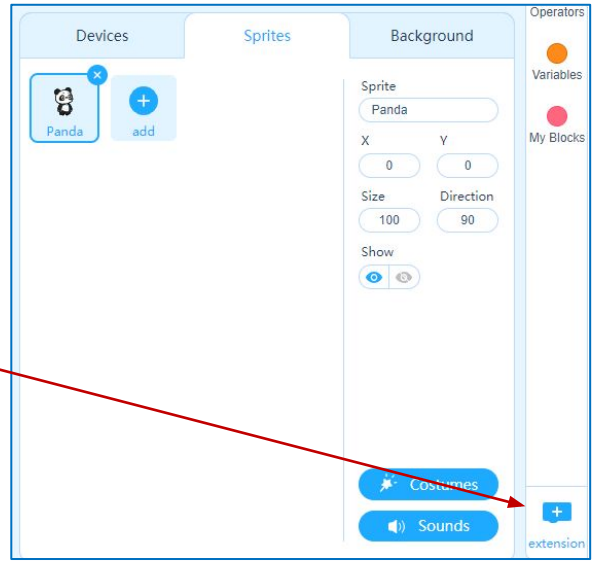
Sprite block extension is a utility of mBlock 5, containing a large number of **customised blocks, for undertaking advance coding projects using scratch.**

Accessing the Sprite Block Extension

To access the sprite block extension:

- In SIA, select working mode Sprites.
- Click on

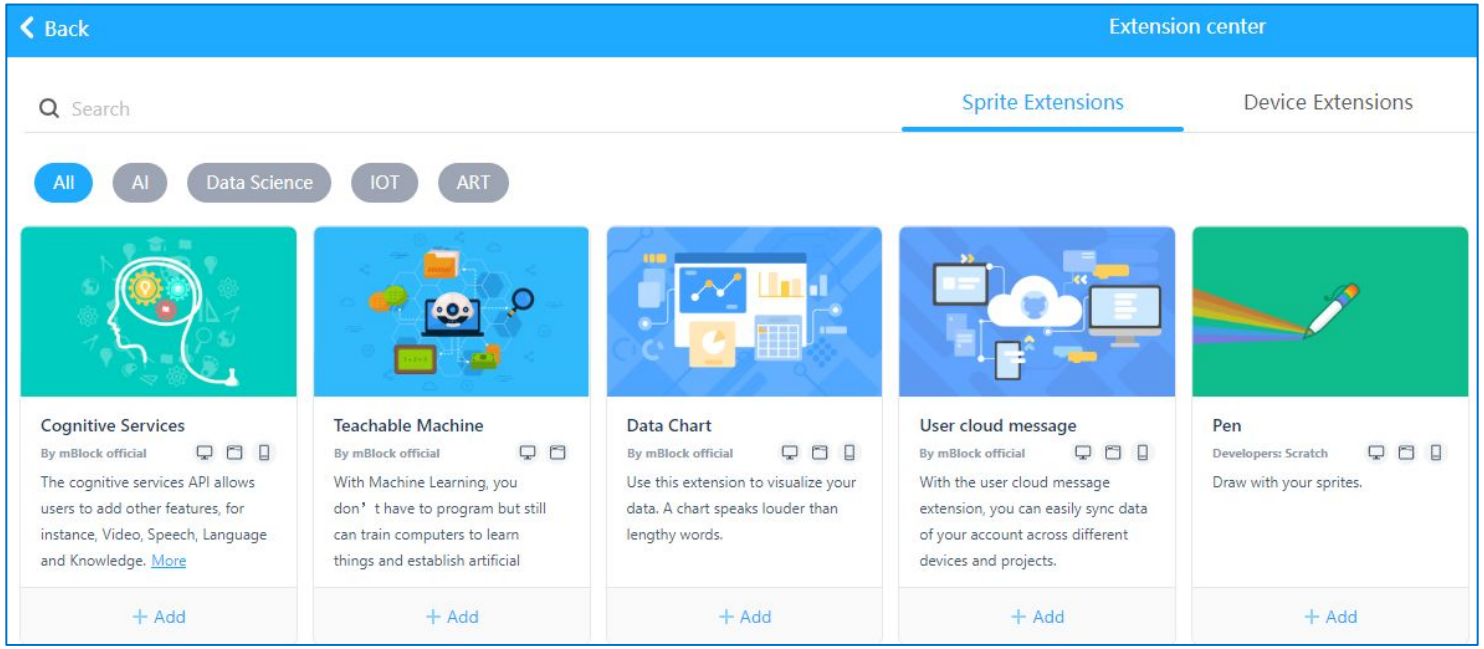
at the bottom of Block area.



The Sprite extension library opens.

It contains blocks for the following categories:

- AI.
- IoT.
- Data Sciences.
- Arts & Music.



Blocks Related to Artificial Intelligence (AI)

Provides blocks for

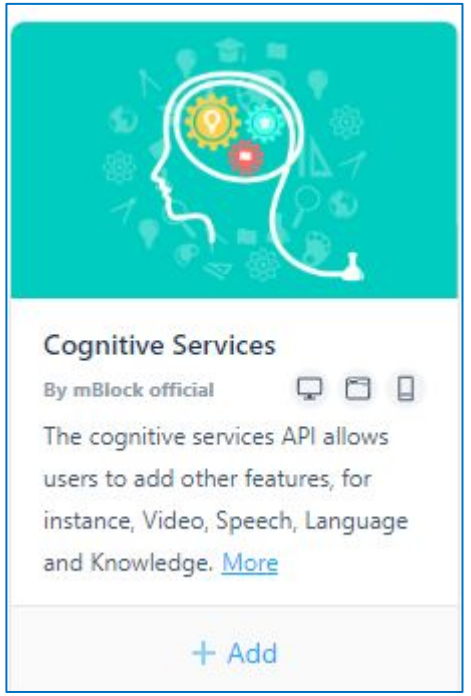
Cognitive/recognition Services
Machine Learning
Text to speech conversion
Translation

Blocks for Cognitive Services

Scratch based Cognitive Services brings learning of AI within the reach of primary school students.

It grants them the ability to see, hear, speak, recognise, convert, search & introduce advanced decision-making into their codes & apps.

To open click on +Add.



Blocks related to cognitive services will open.

The method of using these is same as that for using the blocks learnt so far.

Blocks for Machine Learning

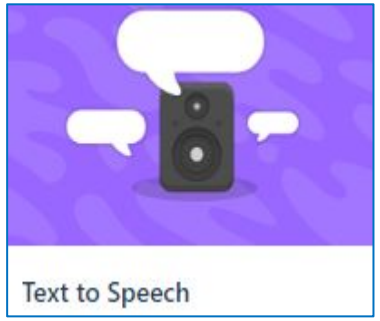
Using these blocks we do not have to code but we can train machines to learn things to work intelligently for us.

This is done by making a training model.
We shall learn it a little later.

Method of use is same as for cognitive services

Blocks for Text to Speech Conversion

Learn to make your projects talk through code



Blocks for Translation

Translate to 48 world languages

Blocks Related to Data Sciences

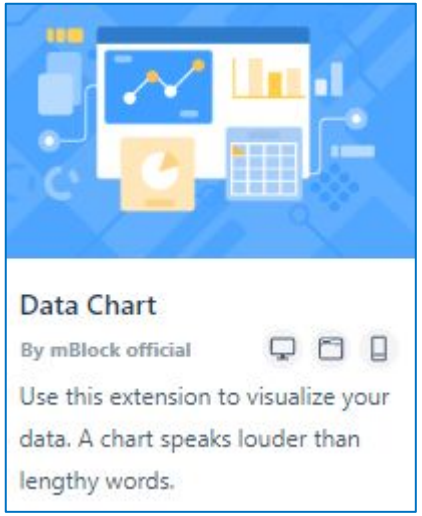
Provides blocks for

Data visualization
Climate data
Working with Google sheets

Blocks for Learning Data Visualisation

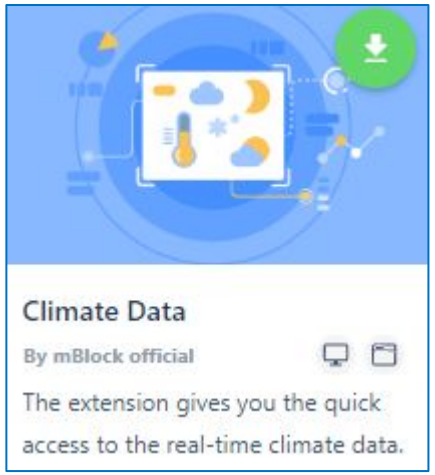
Convert raw data into charts.

Improve data visualisation.



Blocks for Climate Data

Make projects using real time Global climate data.



Blocks for Coding with Google Sheets

Make projects to input data into Google sheets

Blocks Related to IoT

Provides blocks for

Interaction with other devices
Video sensing
Makey Makey

Blocks for Interacting with Other Devices & Projects

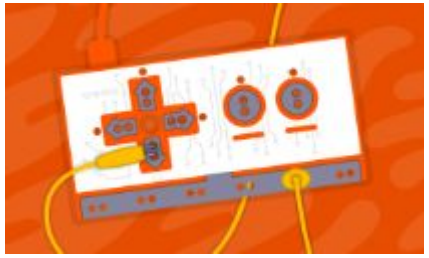
Synchronise your data with other Devices & Projects using Cloud messaging

Blocks for Video Sensing

Make projects
sensing motion with camera

Makey Makey Blocks

Convert things into keys



Blocks for Art & Music

Provides blocks for

Making SW Musical Instruments
Virtual pen sketching

Blocks for making SW Musical Instruments

Learn to make 21 Software Musical instruments

Blocks for Sketching with a virtual Pen

Learn to sketch & make
Your own sprites & More

WOW!
Block extensions have given me tons to learn

Code Karega India Badhega