Innovative Postgraduate Education in The Field of Environment Protection: Methods and Tools

Environmental Sensors learning Course

David Chkhaidze

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BIO Presenter

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Environmental Sensors learning Course

The purpose of the Module is to give students established, practical knowledge of modern software and hardware resources, which are used in the construction of environment observation systems.

Module objectives

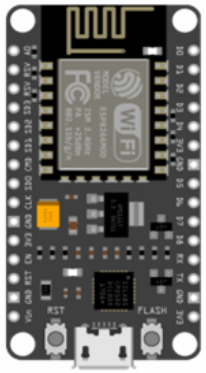
1. Study the principles of operation of a variety of sensors.
2. Study the principles of pairing sensors with a microprocessor.
3. Study the modern IoT (The Internet of Things) systems, in a way of creating multi-task sensor networks.
4. Acquiring basic knowledge of Python scripting language to perform some data processing.
5. Study the principles of different technologies of saving data from sensors.
6. Study the principles of different technologies of data visualization.

Study the principles of operation of a variety of sensors

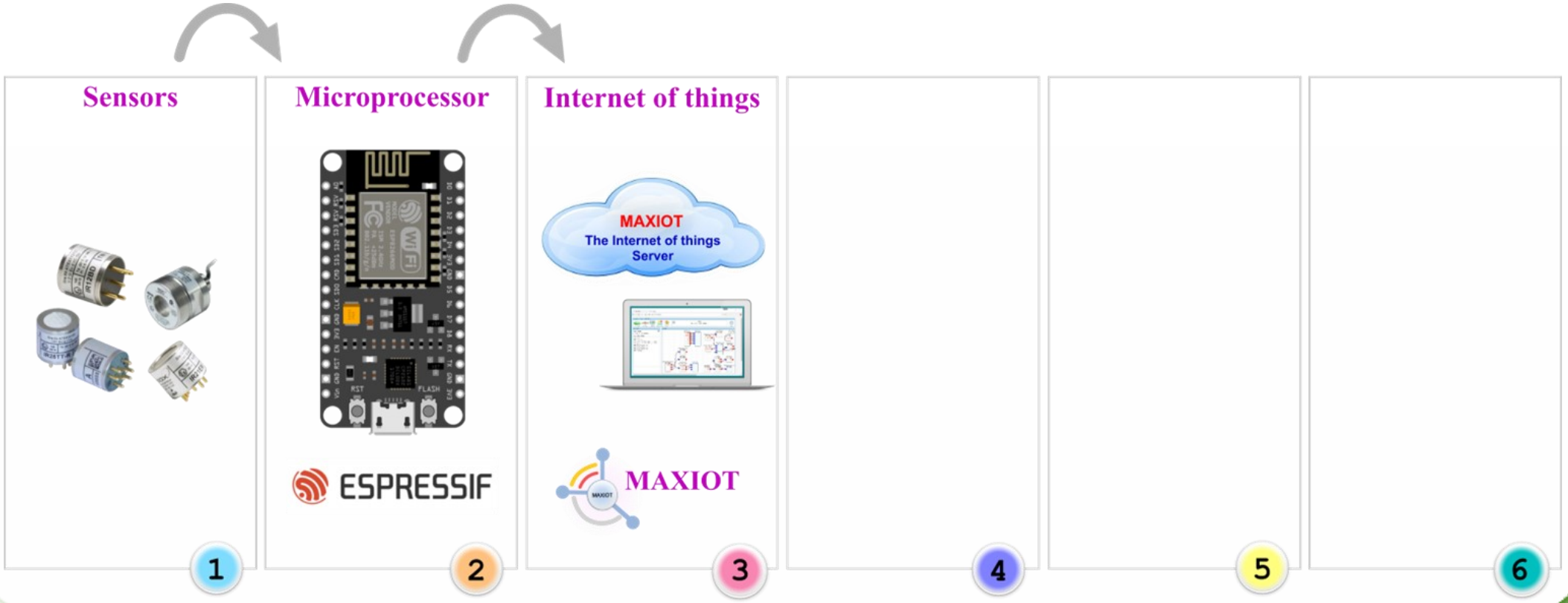
Sensors

1 2 3 4 5 6

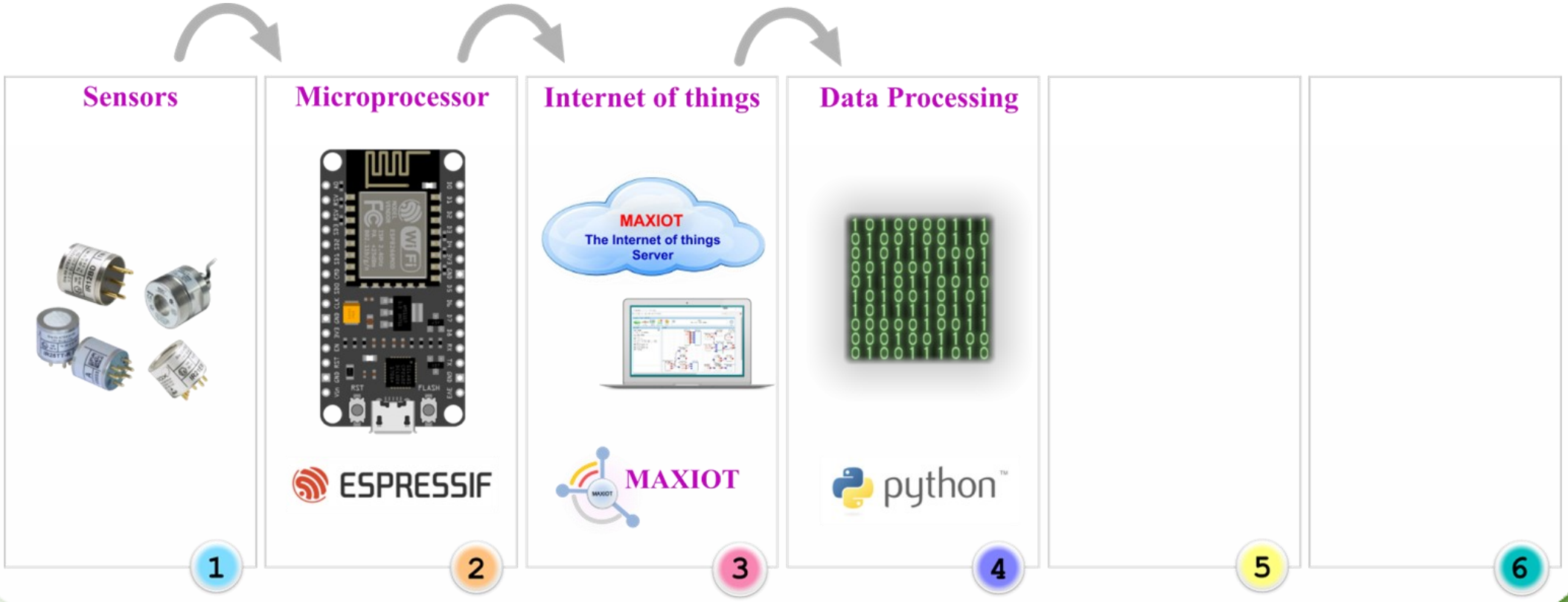
Study the principles of pairing sensors with a microprocessor.

Sensors	Microprocessor				
	 ESPRESSIF				
1	2	3	4	5	6

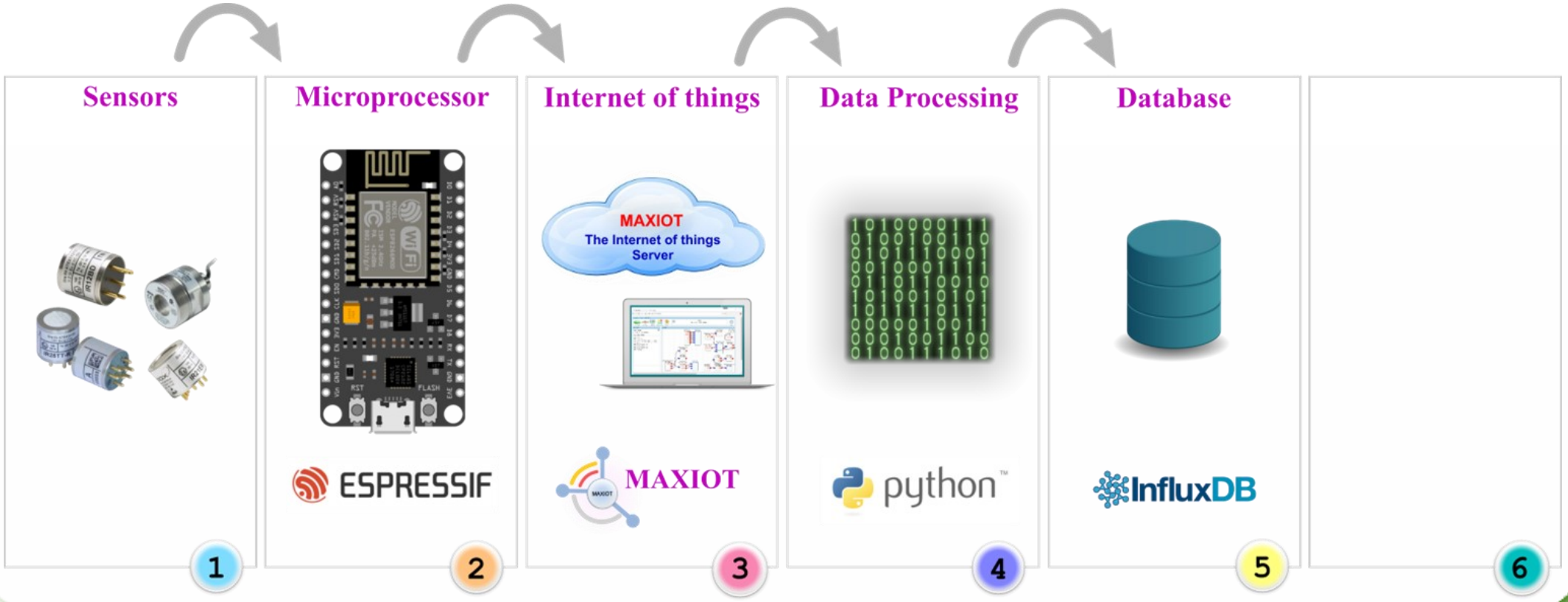
Study the modern IoT (The Internet of Things) systems, in a way of creating multi-task sensor networks.



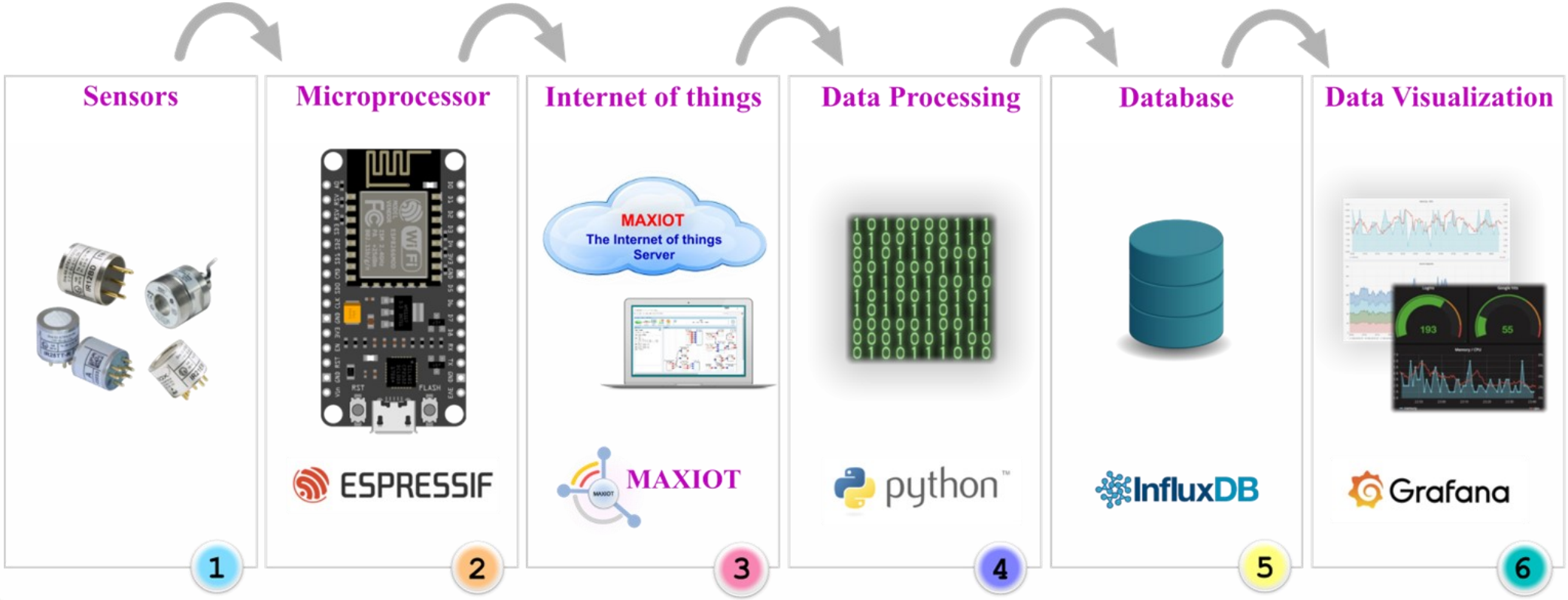
Acquiring basic knowledge of Python scripting language to perform some data processing.

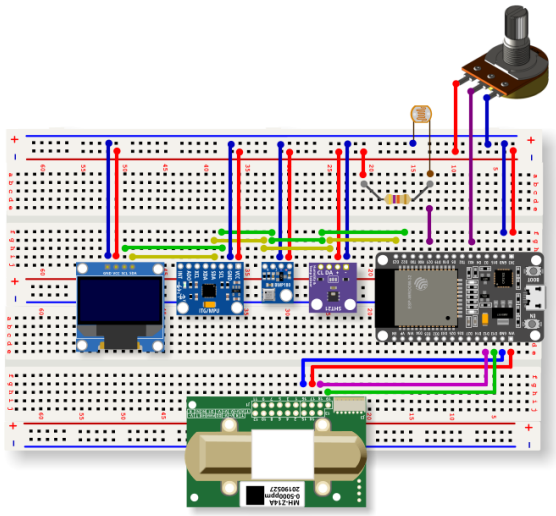


Study the principles of different technologies of saving data from sensors.

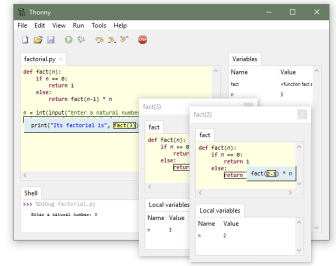


Study the principles of different technologies of data visualization.

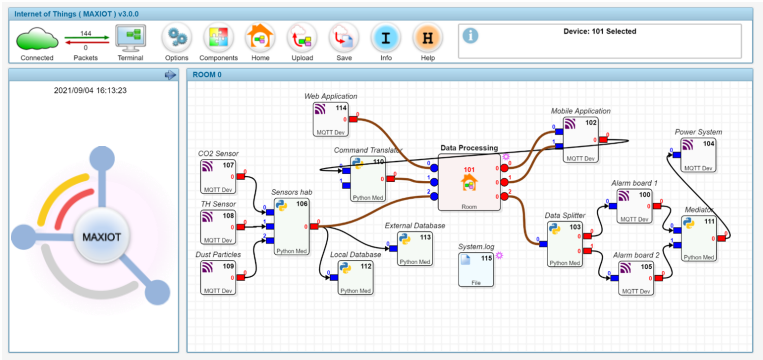




Course Outcomes

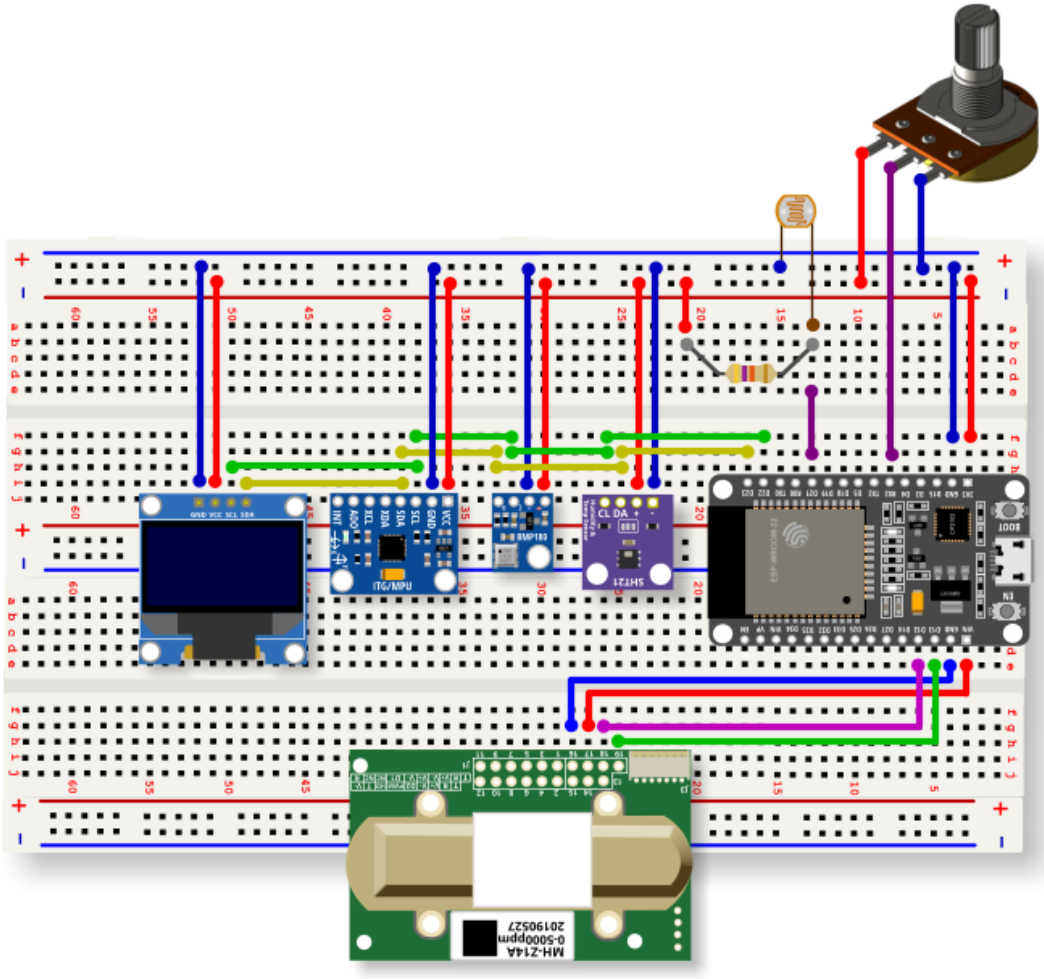


- Select appropriate device for particular environment protection data collection.
- Creating simple sensor-equipped equipment.
- Creating varying complexity sensor networks using MAXIOT IoT systems.
- Creating simple Python scripting for sensor data processing.
- Use InfluxDB, time series database and other means to collect and save sensor data.
- Perform data visualization using Grafana software and some online resources.



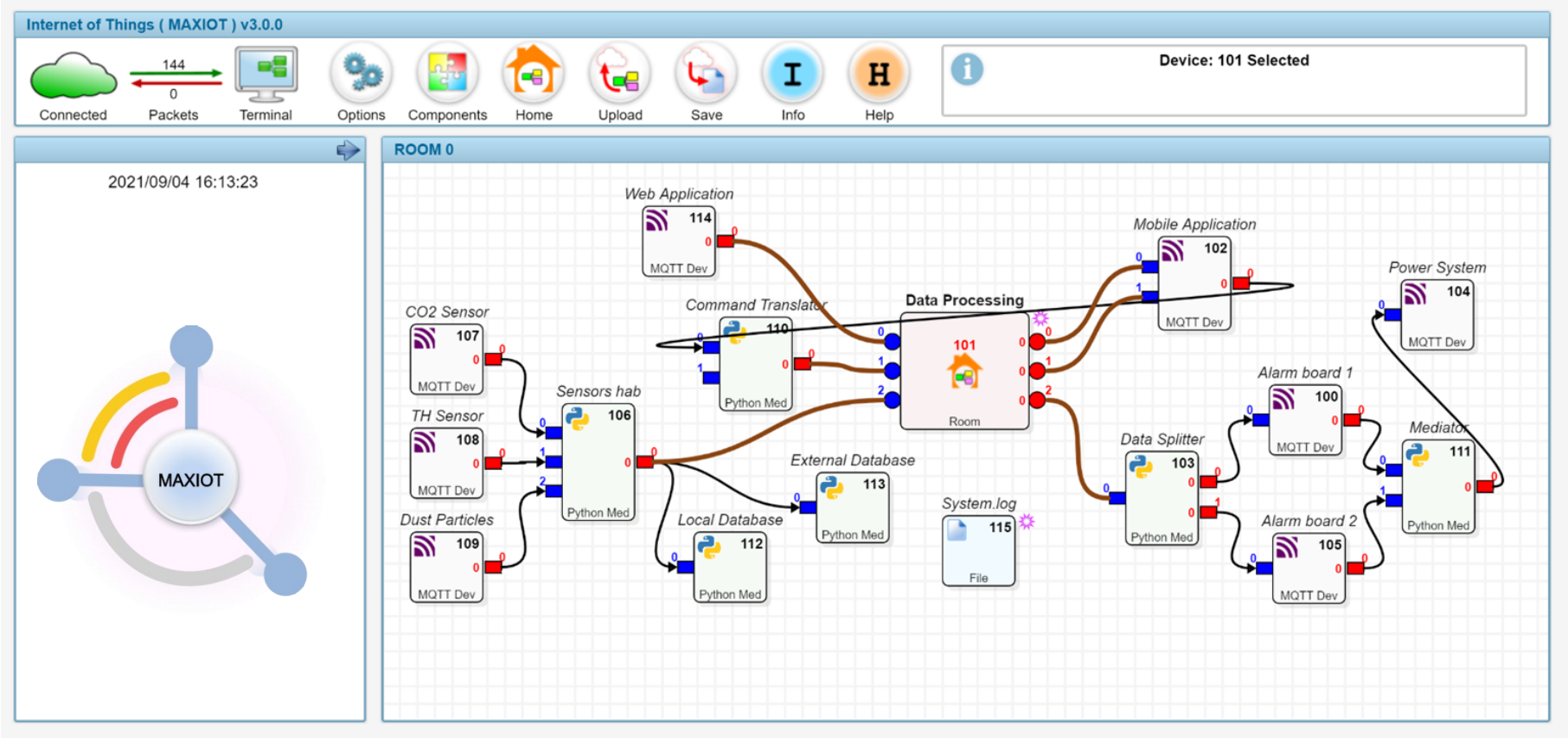
The Internet of Things (IoT)

Creating simple sensor-equipped equipment.



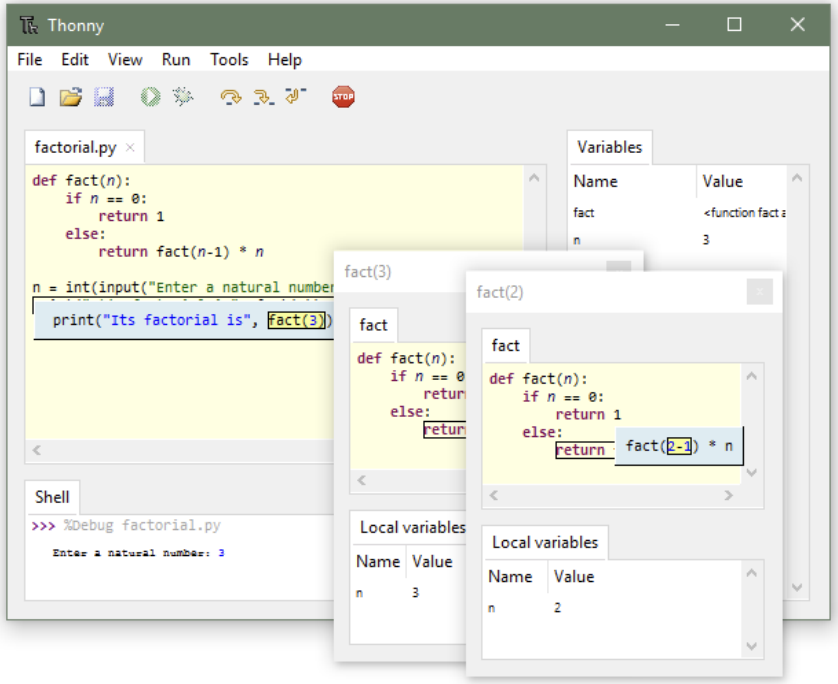
Creating varying complexity sensor networks using MAXIOT IoT systems.

The Internet of Things (IoT)

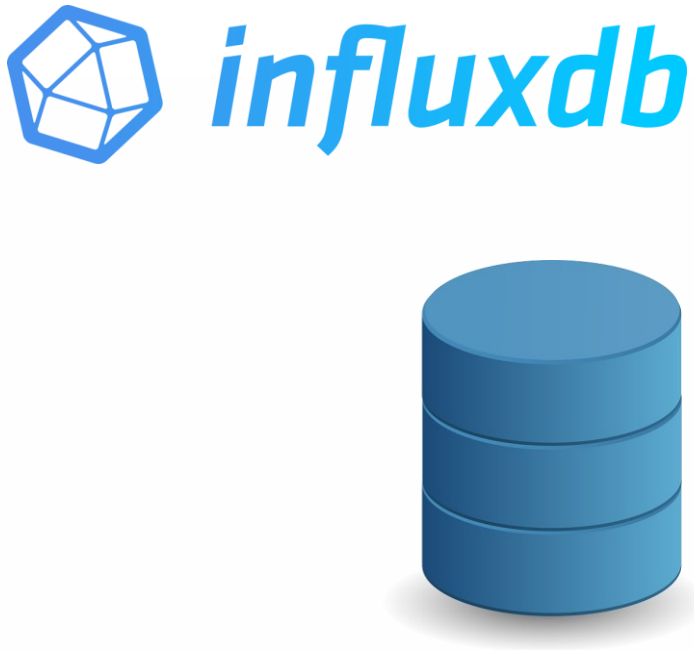


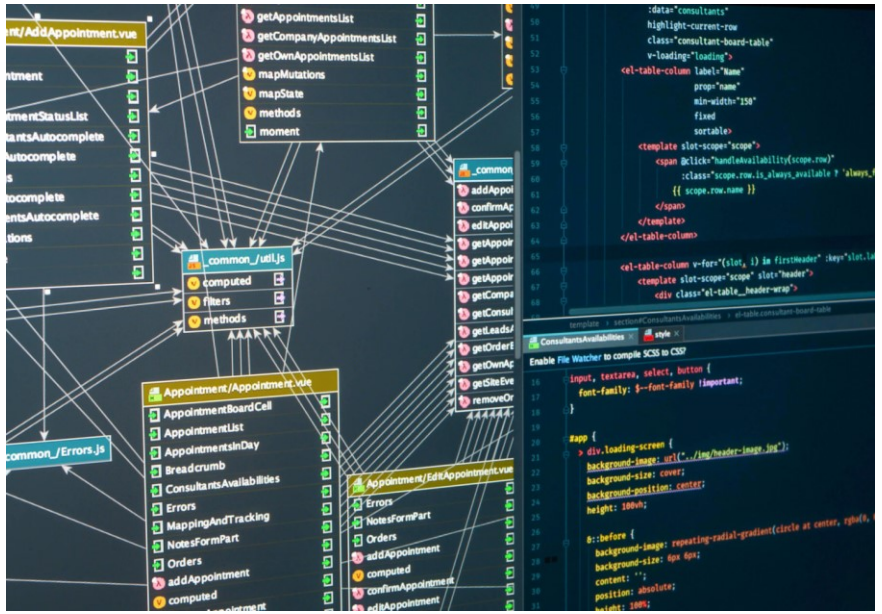
Creating simple Python scripting for sensor data processing.

python Programming

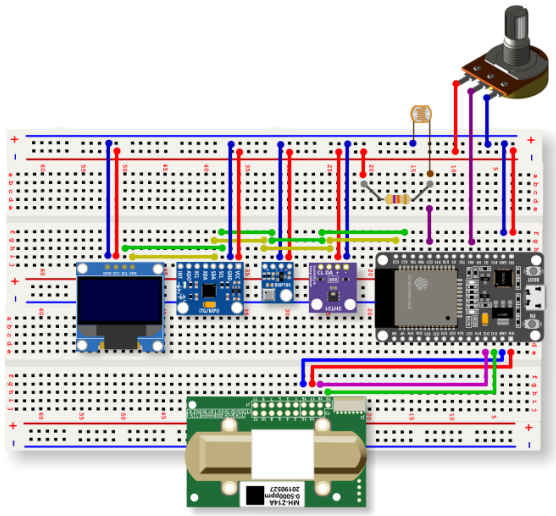


Use InfluxDB, time series database and other means to collect and save sensor data.

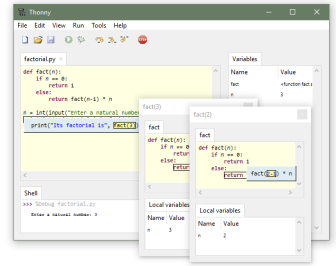




Perform data visualization using Grafana software and some online resources.



Course Outcomes



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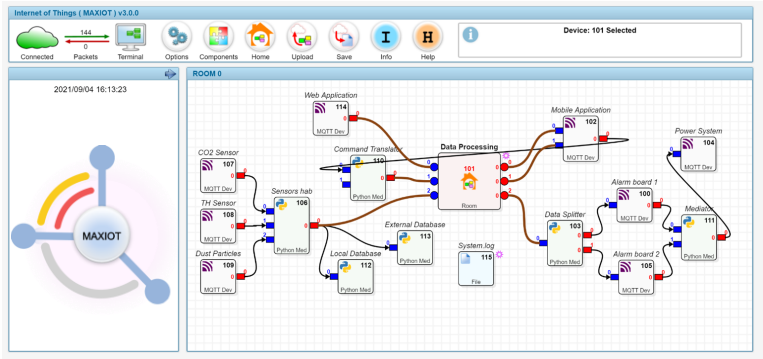

The Internet of Things (IoT)

Microelectronics laboratorys

Fully equipped 3 laboratories for 20 students each

THANK YOU !

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