



LESSON PLAN

Arduino Uno Q

Python Arduino Programming for AI detection and action

ZONE: Software Zone

AGE GROUP: 15-18

MATERIALS: Laptops/Internet/Arduino Uno Q

DESCRIPTION: This workshop aims to teach participants IoT and API coding and its fundamentals, using Python and live data to visualize, analyze, predict and project effects on short and long term. In addition, participants will have an “Open-Eye” on many different aspects of data manipulation, and most of the area where data science excels.

ENGINEERING DESIGN CHALLENGE:

LEARNING OBJECTIVES:

After attending this session, participants will gain:

- What is URL and API
- What is Data read from live resource online.
- How to Use use API to get data.
- How to process API data.
- How to Export API data.
- How to do Projection/Prediction.

Time / Duration	Activity	Materials/requirements
5 min	1- quick recap on previous session	Computer, internet access
20 min	Presentation : • What is URL and API • What is Data read from live resource online. • How to Use use API to get data. • How to process API data. • How to Export API data. • How to do Projection/Prediction.	Computer, internet access

Time / Duration	Activity	Materials/requirements
45 min	<u>Hands on : (Step by Step)</u> 1. Use URL and API to retrieve data from a website following specific parameters 2. How to keep reading from live resource online. 3. How to split and filter received data to fit our case 4. How to process API data. 5. How to Export API data after manipulation and after applying math operations. 6. How to do Projection/Prediction 7. How to plot final data	Computer, internet access.
45 min	Help the participants to do the whole process from connection to coding	Computer, internet access.

	Consideration	Materials/requirements
	1. We need to consider participants has multiple knowledge levels 2. We need to make sure all participants will understand the concept of live data and data plot using python	



THANK YOU