



LESSON PLAN

Arduino Uno Q - Module 2

Full Hybrid System Creation

ZONE: Software Zone

AGE GROUP: 15-18

MATERIALS: Laptops/Internet/Arduino Uno Q

DESCRIPTION: This workshop aims to teach participants how to create a full hybrid system using IoT and AI. In addition, participants will have an “Open-Eye” on many different aspects of data manipulation, and most of the area where robotics excels.

ENGINEERING DESIGN CHALLENGE:

LEARNING OBJECTIVES:

After attending this session, participants will gain:

- Setup and Run Arduino’s newest AI and ML technology
- Create a Detection system using Board and Camera
- Create a Detection Logic to implement in both Arduino and Python
- Implement AI detection of Harmful Events/Objects
- Implement Actions after Detection
- Modify AI and ML libraries for different use cases.

Time / Duration	Activity	Materials/requirements
5 min	1- Ask about AI systems (Ice breaking).	Computer, internet access
20 min	Presentation : • How to Setup and Run Arduino's newest AI and ML technology • How to Create a Detection system using Board and Camera • How to Create a Detection Logic to implement in both Arduino and Python • How to Implement AI detection • How to Implement Actions after Detection • How to Modify AI and ML libraries for different use cases.	Computer, internet access

Time / Duration	Activity	Materials/requirements
45 min	<u>Hands on : (Step by Step)</u> 1. Setup and Run Arduino's newest AI and ML technology 2. Create a Detection system using Board and Camera 3. Create a Detection Logic to implement in both Arduino and Python 4. Implement AI detection of Harmful Events/Objects 5. Implement Actions after Detection 6. Modify AI and ML libraries for different use cases. 7. Use multiple object to be detected and modify code accordingly	Computer, internet access.
45 min	Help the participants how to write Python code to solve fundamental problems in programming	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 new technology	



THANK YOU