Internet of Things (IoT)

SEAMOLEC ASSISTANCE PROGRAMME

SEAMEO SEAMOLEC
SEAMEO REGIONAL OPEN LEARNING CENTRE | 2021

General Explanation of IoT Assistance

Internet of Things (IoT) is an advanced evolution of the internet that has great potential and can drastically change our lives and industry. A new era is underway where technology is the main tool that can accelerate the achievement of goals and increase the productivity of maximum results. Currently, the domestic industrial sector and society with their local wisdom have not yet maximized technology as a tool that can help increase productivity.

Through the internet, not only humans can be connected to each other. It is not a new thing anymore that technology has also been able to connect objects which commonly used in everyday life without the need for interaction with humans.

SEAMOLEC offers an assistance programme for its existing partners, as there are several reasons why IoT needs to be developed:

1. IoT will become common thing in the future. Nearly any tool will require built-in intelligence that is secure and connected to one another.
2. IoT will change and save our lives because it can be developed for the treatment of chronic diseases.
3. IoT reforms existing industries. For example, there is a sensor in a car that can communicate with the sensor built into the traffic light; it can help us map the fastest route to the destination.

4. IoT will be a solution for the emergence of home industries by utilizing existing land. For example, there is an automatic watering sensor on vertical gardens and urban farming that can increase maximum and control results.

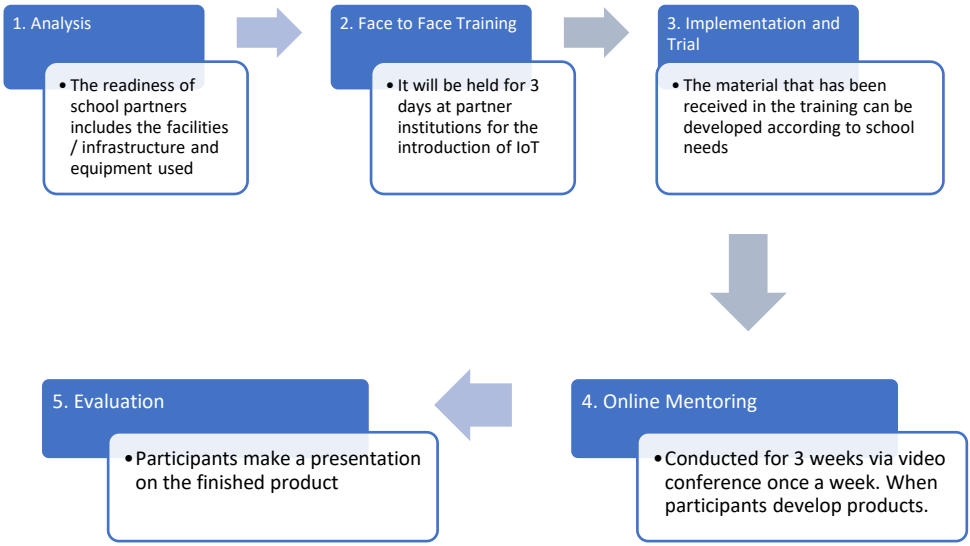
Purpose

1. Exploring the hidden potential of the participants, especially students and teachers in developing IoT
2. Challenge the creativity and innovation of participants in IoT development
3. Produce innovative IoT-based products

Benefits

1. To understand the working principle of the micro controller and Arduino programming
2. To understand IoT technology
3. Apply IoT technology to solve life's problems
4. Implement IoT technology implementation in schools independently as well as in the community and apply business processes
5. Implementing Project-Based Learning (PBL) which is integrated across subjects

Stages



Prerequisite:

1. Participant:
   a. Have an understanding and interest in the field of IoT technology.
   b. Have a basic understanding of electronics and programming.

2. Device:
   a. Computer Laboratory Room or class with a ratio of 1 participant to 1 computer.

b. Wi-Fi / LAN Internet connection is available with a speed of min. 2Mbps.
c. Laptop/PC
d. *System Requirement*: Windows (7/8/10) / Linux (Ubuntu, Debian, Linux Mint)/ Mac OS, *Minimum* 4 GB RAM, 16 GB *of available disk space minimum*, 32GB *recommended*
e. Smart Phone (Android OS): Minimum KitKat (Android *version* 4.0), *higher recommended*

a. *Hardware Requirement*:
    1. *Microcontroller* Arduino dan ESP 82xx *series*
    2. IDE Arduino
    3. Sensor *Proximity*
    4. Sensor gas MQ-2
    5. Soil Moisture Sensor and Water Level
    6. *Temperature and humidity* Sensor DHT 11
    7. Servo Motor
    8. Traffic led
    9. Internet Connection