We are the makers – IoT Learning Scenario
Smart Leaf

1. Title of the Scenario	*How to create our own Smart Leaf*
2. Target group	This scenario can be fit for secondary school and vocational people
3. Duration	This scenario can be divided in 4 two hour lessons
4. Learning needs	Drawing skills, experience with 3D modelling and printing, manual and coding skills.
5. Expected learning outcomes	Awareness of drawing 3D object socially useful Creation our smart leaf with sensors to capture and control from a plant some data
6. Methodologies	Lesson 1: explore the world of IoT, discuss and familiarize about existing devices on the market to capture from the ground/plant the data Lesson 2: introduction of the required sensors for the application and 3D drawing of the leaf Lesson 3: Programming of sensors and electronics to acquire data from the plant Lesson 4: Assembly the smart device, testing its functionality and final discussion
7. Place / Environment	Classroom
8. Tools / Materials / Resources	Computer with CAD and programming software, one of each three students Kits with electronic parts Shield, humidity sensor, battery and led Software to program electronic boards Plat for the test

9. Step by step description of the activity / content	Lesson 1: The world of IoT and the existing devices on the market 1. Explore the IoT solutions in the world. 2. Discuss about the existing devices to control parameter from ground and plant. How we can replicate one of these, what do we need? Lesson 2: Introduction of the sensors that we need for the device and 3D drawing of the leaf 1. Explore the hardware parts that we need: - Arduino shield - Humidity sensor - Led - Battery 2. Design of a leaf with a 3D CAD software Lesson 3: Programming of sensors and electronic parts 1. We understand how the sensor should be to acquire data from the plant 2. We program the board to read and acquire data from the plant Lesson 4: Assembly and testing of the Smart Leaf 1. We assembly the smart leaf: 3D and electronics components 2. Testing the Smart Leaf in a plant 3. Discussion of the results obtained and final comparison
10. Feedback	Lesson 1: learn what IoT is and how it is currently applied in our lives Lesson 2: knowledge of 3D CAD Software Lesson 3: knowledge of programming electronic devices to create something functional Lesson 4: Demonstration of what has been done and what we have learn from these lessons

11. Assessment & Evaluation	Lesson 1: Each team have learned what IoT is?
	Lesson 2: Did they understand how design with 3D CAD Software?
	Lesson 3: Have they understood which parameters they have to control from the plant and how to program the devices?
	Lesson 4: What did they learn from the final test?