

Short Training Course in “Rapid Prototyping for IoT”

Date: 23-27th April
Kigali, Rwanda

The African Center of Excellence in Internet of Things (ACEIoT) in collaboration with WAZIUP- a Horizon 2020 project is organizing a short course in Rapid Prototyping for IoT. This hands-on activity will focus on building open, low-cost, sustainable IoT solutions.

The applications will focus on the rural and farms applications concerning the food and livestock, security covering the complete food cycle from field to fork. The students and entrepreneurs will be encouraged to spin-off business and application in the following domains. The training course will allow the rapid prototyping of the applications. However, it is not limited only to agriculture and farms. Any other IoT and big data applications that has clear social-economic impact as well as business potential will also be considered.

Program

Monday, April 23 rd 2018			
Session	Time	Activity	
Opening IoT Workshop	8.00 am -9.00 am	Registration of Participants	
	9.00 am- 9.15 am	Opening Remarks	Prof. Philip Cotton, VC, University of Rwanda.
	9.15 am- 9.30 am	Welcome Remarks	Dr. Ignace Gatare Principal, UR-CST
	9.30 am-10.00 am	Keynote Address	Honorable Minister JEAN de Dieu Rurangirwa.
	10.00-10.30 am	Coffee Break	
	10.30-10.45 am	About ACEIoT	Assoc.Prof. Santhi Kumaran Director, ACEIoT
	10.45- 11.00 am	About WAZIUP & WAZIHUB	Dr.-Ing. Rahim, WAZIUP
	11.00 -11.30 am	Opportunities for IoTizing the Smart Africa Initiative.	Mr. Jean Philbert Nsengimana, Special Advisor, Smart Africa.
	11.30 am-12.00	Smart City Master Plan and links to IoT4D	Innocent Bagamba Muhizi, CEO-RISA
	12.00-12.30	Introduction to IoT	Dr. Dupont, WAZIUP
	12.30 -1.00 pm	Use Cases of IoT	Dr.-Ing. Rahim, WAZIUP
	1.00 -2.00 pm	Lunch Break	
Pitch Presentations and hands-on preparation	2.00 pm to 5.30 pm	<ul style="list-style-type: none"> ➤ How to give a pitch? ➤ Participants present their ideas (pitch presentation) ➤ Forming practical work groups ➤ Overview of WAZIUP toolkits and materials 	Mr. Fiifi Baidoo Dr.-Ing Abdur, WAZIUP All Students 10 student groups

Tuesday, April 24 th , 2018			
IoT Sensor Node prototyping	8.am to 10.30 am	<ul style="list-style-type: none"> ➤ Basics of C programming (Dr. Damien) ➤ Basic of IoT Hardware (Raspberry Pi, Arduino) (Mr. Desire) ➤ Basic of Sensor – Digital and Analog Sensors (Prof.Santhi) ➤ Sensor interfacing with IoT Hardware (Dr.Mamour Diop) ➤ Simple exercises (Dr.Mamour Diop) ➤ Cattle rusting and soil moisture example prototype (Dr.Mamour Diop) 	Dr. Damien Dr.. Mamour Diop Prof. Santhi Mr. Desire
	10.30- 11.00 am	Coffee Break	
	11.00 am to 1.30 pm	<ul style="list-style-type: none"> ➤ Prototyping sensors node based on Arduino (Dr.Mamour Diop) 	Dr. Mamour Diop Mr. Desire Dr. Said
	1.30 to 2.30 pm	Lunch Break	
IoT Connectivity	2.30 pm to 5.30 pm	<ul style="list-style-type: none"> ➤ Basic of IoT short-range and long-range communication (e.g. LoRa) (Prof.Santhi) ➤ WAZIUP IoT LoRa framework (Dr. Mamour Diop) ➤ Prototyping sensors node with LoRa Dr. Mamour Diop) 	Dr. Mamour Diop Dr-Ing. Abdur Prof. Santhi
Wednesday, April 25 th , 2018			
IoT Sensors and communications	8.am to 10.30 am	<ul style="list-style-type: none"> ➤ Basic of Python programming (Dr. Mamour Diop) ➤ IoT protocol (e.g. MQTT, REST) and database (MongoDB) (Dr. Mamour Diop) ➤ Gateway Configuration with WAZIUP Cloud (Dr. Mamour Diop) ➤ Connecting Gateway with Internet via WiFi and 3G (Dr. Mamour Diop) 	Dr-Ing. Abdur Dr.Mamour Diop Dr.Corentin Dupont
	10.30 -11.00 am	Coffee Break	
	11.00 am to 1.30 pm	<ul style="list-style-type: none"> ➤ Finalizing IoT LoRa sensing platform Dr.Mamour Diop 	Dr-Ing. Abdur Prof. Santhi
	1.30 to 2.30 pm	Lunch Break	
		<ul style="list-style-type: none"> ➤ Basic of Cloud platform (Dr.Said) 	Dr-Ing.Abdur

IoT Cloud Basics	2.30 pm to 5.30 pm	<ul style="list-style-type: none"> ➤ Basic of IoT architecture (Dr-Ing. Abdur) ➤ Basic of big data technologies (Dr-Ing. Abdur) ➤ WAZIUP Cloud platform (Dr. Corentin Dupont) ➤ How to use API (Tutorial) (Dr. Corentin Dupont) 	Dr. Corentin Dupont Dr. Said
Thursday, April 26th, 2018			
WAZIUP IoT Cloud visualization	8.am to 10.30 am	<ul style="list-style-type: none"> ➤ WAZIUP Dashboard (Dr. Corentin Dupon) ➤ Smart web applications development and hosting (Dr. Corentin Dupon) ➤ Mobile application development tools (Dr. Corentin Dupon) 	Dr. Corentin Dupont Mr. Desire
	10.30 to 11.00 am	Coffee Break	
	11.00 am to 1.30 pm	<ul style="list-style-type: none"> ➤ Kibana data visualization (Dr. Corentin Dupon) ➤ IVIS Visualization tools (Dr-Ing. Abdur Rahim) 	Dr. Corentin Dupont Dr-Ing.Abdur Rahim
	1.30 to 2.30 pm	Lunch Break	
Application development	2.30 pm to 5.30 pm	Application prototyping by students (Dr. Corentin Dupont)	ALL
Friday- Stakeholder workshop (ministry, external companies and association, NGO) and showcases, certification			
Morning	8.am to 10.30 am	Students Finalizing the project including the presentation preparation	10 student groups
	10.30 to 11.00 am	Coffee Break	
	11.00 am to 1.30 pm	Show-case and pitch of the 10 groups	ALL
	1.30 to 2.30 pm	Lunch Break	
Afternoon	2.30pm to 4.00 pm	Stakeholder presentations 1.Kigali Innovation City 2. Smart Meteorology using IoTs Awarding of Certificates Closing Remarks	Dr. Steve Mutabazi TBD VC, UR-CST Principal, UR-CST
Close of the Short Training Course			