**IoT Course Outline**

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| **Lesson 1** | **Lesson 2** | **Lesson 3** | **Lesson 4** | **Lesson 5** |
| Development Environment | Wiring and configuration | Networking | Interactive clients (web/mobile) | Custom tutorials |
| Programming Languages | Hardware capabilities | Network Communication Protocols | Integrating AT services | EAP |
| Africa’s Talking Account | Sensors and Actuators | Device Pubsub | Sandbox experience | Open source |

Lesson 1 Outcomes

* Properly set up IDEs { Arduino/PlatformIO/STM32Cube} and CLI tools needed for embedded application development
* Familiarity with C/C++
* Africa’s Talking Developer account

Lesson 2 Outcomes

* Eris pinouts
* Hardware communication protocols {I2C/SPI/UART/CAN}
* Interacting with External EEPROM
* Power management
* Interrupts
* Wiring sensors and actuators
* Managing peripherals

Lesson 3 Outcomes

* Configuring GSM module
* MQTT
* Sending and receiving data to and from the device

Lesson 4 Outcomes

* Build web clients that interact with the hardware via HTTP-MQTT bridge
* Integrate other Africa’s Talking services
* Test out interactive developer experience on Africa’s Talking sandbox

Lesson 5 Outcomes

* Using Github/Gitlab/Bitbucket to build community tutorials
* EAP interest for Eris Developer boards and kit/shield