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| Project 1  TinyOS, Cooja, Node-RED, IFTTT |  |
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**TinyOS**

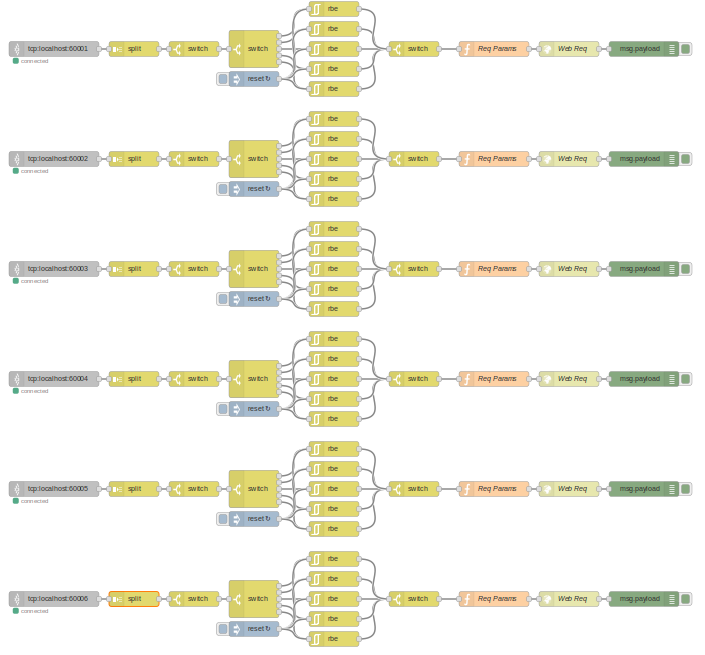
In Cooja we created a topology with six sky motes. Each mote broadcasts a message every 500ms, containing its ID. When two motes are close enough, each one will send a TCP message (on his own socket) to Node-RED, containing the ID of the nearby sensed mote.

**Node-RED**

Every mote is associated to a different flow, slightly different from the others but overall similar. For every mote, the flow contains:

* TCP CONNECTION: the node creates a connection to the serial server of the motes
* (port 60001-60006).
* SPLIT: a split node is used to isolate different fields of the message, in order to keep only the useful information for later.
* SWITCH1: this switch is used to select only the right message field (the one containing the sensed mote ID).
* SWITCH2: this switch divides messages containing different mote IDs on different flows in order to correctly enable the function of RBE. In this way 5 new flows are created, each one containing always the same message associated with the same mote ID.
* RBE: this function forwards a message only if it is different from the previous one. In this way every further message that contains the same mote ID is ignored.
* INJECT: this inject is used to send a “reset” message in every RBE. This message will refresh the buffer of RBE node, enabling him to send a new message again. The purpose of this function is to let Node-RED be able to send a new notification message when two motes are pulled together again a second time after the first.
* SWITCH: this switch is used to ignore “reset” messages that will be fired every 30 seconds, since their purpose is only to enable the RBE node again.
* FUNCTION: the function node assembles the message to be sent to the IFTTT applet. The message contains two values: sender mote ID and sensed mote ID.
* WEB REQUEST: creates a web request to our IFTTT applet.

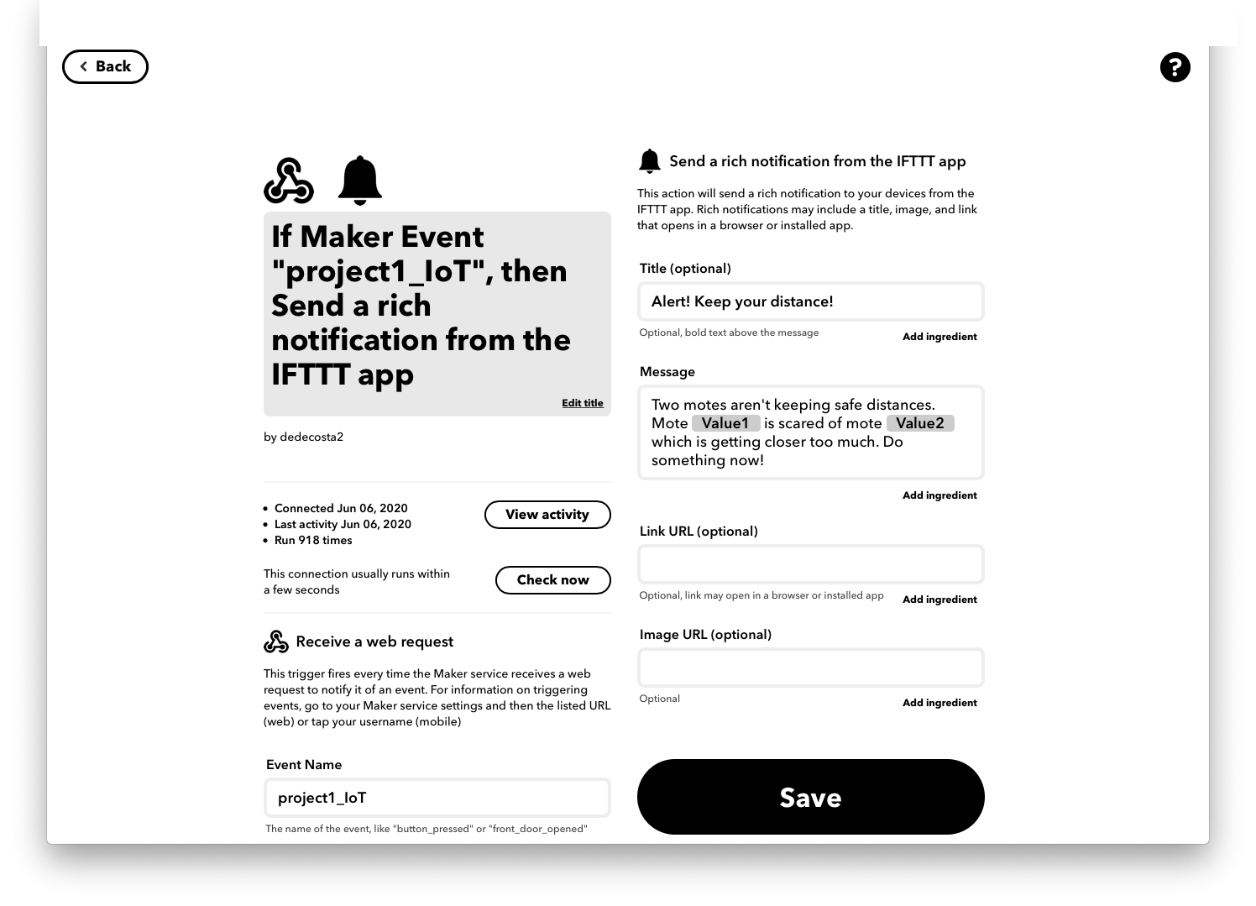
In this way we have a total of 6 flows, one per mote, that handles motes messages independently.



**IFTTT Applet**

The IFTTT applet sends a smartphone notification every time a new message is received from Node-RED. The applet is composed of:

* Webhook: receives POST messages.
* Notification: push a notification to IFTTT mobile app.



GitHub repository with all the activities + project: <https://github.com/FraMaffezzoli/IoT_Project>