**Connection and communication - data**

In general, the real data (water meter) is collected by using the water flow sensor and sensor data via Raspberry PI. Then, it is loaded on local database via SQLite and make it available online by creating web server based on Flask and Python as diagram.

Sensor data

Raspberry PI

Local Network

Web server (Front end)

Water flow sensor

GPIO (General Purpose Input Output Pins) library is utilised for collecting data from sensor and sys library is used for measurement the time. The structure data as “Water table” including water\_id (increase automatically), quatity (GPIO.input – water meter after calculation), area (default), start\_time and end\_time (time.time() – real time) .

In detail, Raspberry PI need to be set up to connect to Python webserver. Firstly, Raspberry PI IP address (wlan0) is entered on route.py with port is 80. It means that the server starts to listen on the port 80 with host is RPI IP address. GPIOs ... and …. are defined as input, reading values and storing in database. The loop is created to collect, process the real data and add values into “water table” all the time.

Raspberry PI

Webserver

Transfer data using GPIO

RPI IP address