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\* WaterMonitor.ino

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\* GitHub Link :<https://github.com/DFRobot/watermonitor>

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\* the Free Software Foundation, either version 3 of the License, or

\* (at your option) any later version.

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\* Description:

\* This sample code is mainly used to monitor water quality

\* including ph, temperature, dissolved oxygen, ec and orp,etc.

\*

\* Software Environment: Arduino IDE 1.8.2

\* Software download link: <https://www.arduino.cc/en/Main/Software>

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\* Install the library file：

\* Copy the files from the github repository folder libraries to the libraries

\* in the Arduino IDE 1.8.2 installation directory

\*

\* Hardware platform : Arduino M0 Or Arduino Mega2560

\* Sensor pin:

\* EC : A1

\* PH : A2

\* ORP : A3

\* RTC : I2C

\* DO : Serial port Rx(0),Tx(1)

\* GravityDO：A4

\* temperature:D5

\*

\* SD card attached to SPI bus as follows:

\* Mega: MOSI - pin 51, MISO - pin 50, CLK - pin 52, CS - pin 53

\* and pin #53 (SS) must be an output

\* M0: Onboard SPI pin,CS - pin 4 (CS pin can be changed)

\*

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#include <SPI.h>

#include <SD.h>

#include <Wire.h>

#include "GravitySensorHub.h"

#include "GravityRtc.h"

#include "OneWire.h"

#include "SdService.h"

#include "Debug.h"

#include <SoftwareSerial.h>

// clock module

GravityRtc rtc;

// sensor monitor

GravitySensorHub sensorHub;

SdService sdService = SdService(sensorHub.sensors);

void setup() {

Serial.begin(9600);

rtc.setup();

sensorHub.setup();

sdService.setup();

}

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// function name: sensorHub.getValueBySensorNumber (0)

// Function Description: Get the sensor's values, and the different parameters represent the acquisition of different sensor data

// Parameters: 0 ph value

// Parameters: 1 temperature value

// Parameters: 2 Dissolved Oxygen

// Parameters: 3 Conductivity

// Parameters: 4 Redox potential

// return value: returns a double type of data

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

unsigned long updateTime = 0;

void loop() {

rtc.update();

sensorHub.update();

sdService.update();

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Serial debugging \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

if(millis() - updateTime > 2000)

{

updateTime = millis();

Serial.print(F("ph= "));

Serial.print(sensorHub.getValueBySensorNumber(0));

Serial.print(F(" Temp= "));

Serial.print(sensorHub.getValueBySensorNumber(1));

Serial.print(F(" Do= "));

Serial.print(sensorHub.getValueBySensorNumber(2));

Serial.print(F(" Ec= "));

Serial.print(sensorHub.getValueBySensorNumber(3));

Serial.print(F(" Orp= "));

Serial.println(sensorHub.getValueBySensorNumber(4));

}

}

//\* \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Print the relevant debugging information \*\*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\*\*\*\*\*\*\*\*\*\* \* /

// Note: Arduino M0 need to replace Serial with SerialUSB when printing debugging information

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Serial debugging \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

//Serial.print("ph= ");

//Serial.print(sensorHub.getValueBySensorNumber(0));

//Serial.print(" Temp= ");

//Serial.print(sensorHub.getValueBySensorNumber(1));

//Serial.print(" Orp= ");

//Serial.println(sensorHub.getValueBySensorNumber(4));

//Serial.print(" EC= ");

//Serial.println(sensorHub.getValueBySensorNumber(3));

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* time \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\*\*\*\*\*\*\*\*

//Serial.print(" Year = ");//year

//Serial.print(rtc.year);

//Serial.print(" Month = ");//month

//Serial.print(rtc.month);

//Serial.print(" Day = ");//day

//Serial.print(rtc.day);

//Serial.print(" Week = ");//week

//Serial.print(rtc.week);

//Serial.print(" Hour = ");//hour

//Serial.print(rtc.hour);

//Serial.print(" Minute = ");//minute

//Serial.print(rtc.minute);

//Serial.print(" Second = ");//second

//Serial.println(rtc.second);