Proyecto innovación MS

Tabla de contenido

[Adquisición de datos 2](#_Toc56087450)

[Raspberry Pi: 2](#_Toc56087451)

[Arduino 3](#_Toc56087452)

[Estados de la moto 3](#_Toc56087453)

[Subsistemas 3](#_Toc56087454)

[BMS12v3 3](#_Toc56087455)

[Cargador PFC500 3](#_Toc56087456)

[SEVCON GEN 4 SIZE 6 3](#_Toc56087457)

[Subida de datos a la nube 5](#_Toc56087458)

# Adquisición de datos

## Raspberry Pi:

Hardware:

* Alimentación IN – 5 V (Pin 4)
* Alimentación OUT – 3.3 V (Pin 1), 5 V (Pin 2), GND (Pin 6)
* Protecciones – Pin 18 (GPIO 24) – 3.3 V (0 = STOP | 3.3 V = OK)
* ¿Otros?

Software:

<https://github.com/ascuadrado/mcp2515_rpi>

Datos recopilados van a: *“datos.txt”* en Desktop

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BMS 1 | V1,01  (0) | V1,02  (1) | V1,03  (2) | V1,04  (3) | V1,05  (4) | V1,06  (5) | V1,07  (6) | V1,08  (7) | V1,09  (8) | V1,10  (9) | V1,11  (10) | V1,12  (11) | T1,1  (12) | T1,2  (13) |
| BMS 2 | V2,01  (14) | V2,02  (15) | V2,03  (16) | V2,04  (17) | V2,05  (18) | V2,06  (19) | V2,07  (20) | V2,08  (21) | V2,09  (22) | V2,10  (23) | V2,11  (24) | V2,12  (25) | T2,1  (26) | T2,2  (27) |
| BMS 3 | V3,01  (28) | V3,02  (29) | V3,03  (30) | V3,04  (31) | V3,05  (32) | V3,06  (33) | V3,07  (34) | V3,08  (35) | V3,09  (36) | V3,10  (37) | V3,11  (38) | V3,12  (39) | T3,1  (40) | T3,2  (41) |
| Charger | Vc  (42) | Ic  (43) | Flag0  (44) | Flag1  (45) | Flag2  (46) | Flag3  (47) | Flag4  (48) |  |  |  |  |  |  |  |
| Inversor | *Switch on*  *(49)* | | *I descarga*  *(50)* | |  |  |  |  |  |  |  |  |  |  |

Tensiones: Tensión celda en milivoltios

Temperaturas: Temperaturas de los módulos en grados centígrados

Cargador:

* Flag0: *Hardware Failure* 0: Normal

1: Hardware Failure

* Flag1: *Temperature of Charger* 0: Normal 2: Over Temperature protection
* Flag2: *Input Voltage* 0: Normal

1: Input voltage is wrong = charger stops

* Flag3: *Starting State* 0: Charger detects battery voltage and starts charging

1: Charger stays turned off (to prevent reverse polarity)

* Flag4: *Communication State* 0: Communication is normal

1: Communication receive time-out

Ejemplo de fichero:

[ 3610 , 3607 , 3609 , 3608 , 3614 , 3608 , 3608 , 3608 , 0 , 0 , 11 , 12 , 13 , 13 ,

3619 , 3609 , 3612 , 3608 , 3608 , 3607 , 3612 , 3610 , 3610 , 0 , 10 , 11 , 13 , 12 ,

3613 , 3612 , 3614 , 3612 , 3612 , 3614 , 3614 , 3610 , 0 , 0 , 11 , 14 , 13 , 12 ,

9600 , 10000 , 0 , 0 , 0 , 0 , 0 , 0]

Configuración usada para Raspberry:

- habilitar ssh, vnc, spi

- editar configuración de compilación en geany: (para programar en C++)

Build: g++ -lstdc++ -lwiringPi -Wall -Wno-narrowing -o "%e" "%f"

Run: sudo chmod +x "%e"; "-/%e"

Opcional:

- seguir tutorial <https://www.raspberrypi.org/documentation/configuration/wireless/access-point.md> para crear WIFI AP?

- instalar samba?

Conexión remota:

Wifi móvil: “Alberto”

Clave: “albertos”

SSH(terminal): ssh [pi@betoberry.local](mailto:pi@betoberry.local)

Contra: betoberry

Actualizar: sudo apt update ; sudo apt upgrade

## Arduino

Arduino MEGA?? ESP32??

### Sensores

* Acelerómetro
* GPS
* Galgas extensiométricas
* Micrófono
* Temperatura

## Estados de la moto

OFF, StandBy, Charge, Run, Error??

## Subsistemas

### BMS12v3

Hay que decidir cómo se van a medir las celdas

### Cargador PFC500

Cuidado con dirección (es distinta a la del manual) -> mirar en el conector

### SEVCON GEN 4 SIZE 6

Comunicación CANOpen. Recibimos 5 TPDO (Transmission Process Data Object). La información de qué transmite cada uno la encontramos en el programa SEVCON.

Importante: COB-ID = CAN ID

*Example messages:*

*10:00:34.493 -> Received packet with id 0x274 = 628 (dec) and length 8*

*10:00:34.493 -> 0 0 0 0 7 0 F 0 = 28912*

*10:00:34.493 ->*

*10:00:34.493 -> Received packet with id 0x195 = 405 (dec) and length 5*

*10:00:34.493 -> C7 0 13 0 0*

*10:00:34.493 ->*

*10:00:34.493 -> Received packet with id 0x146 = 326 (dec) and length 8*

*10:00:34.493 -> F6 0 0 0 0 0 0 0*

*10:00:34.493 ->*

*10:00:34.493 -> Received packet with id 0x168 = 360 (dec) and length 8*

*10:00:34.493 -> 4F 1 0 0 0 0 0 0*

*10:00:34.526 ->*

*10:00:34.526 -> Received packet with id 0x370 = 880 (dec) and length 8*

*10:00:34.526 -> 0 0 0 0 0 0 0 0*

# Subida de datos a la nube

* Demons??
* Volcado manual??