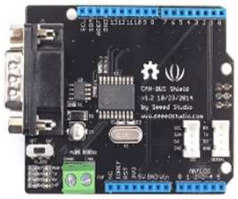
Systèmes embarqués open source pour un kart électrique

Objectifs :
- Instrumenter : modules, capteurs, actionneurs…
- Programmer : Arduino / Raspberry / OS temps réel trampoline

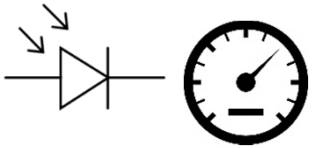
Kart électrique

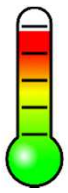
Arduino

Shield CAN



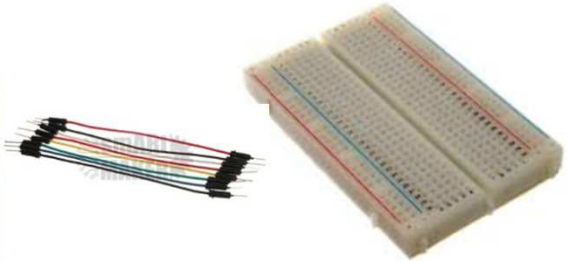
Raspberry Pi





Arduino / L3PRO SETA

Arduino Uno

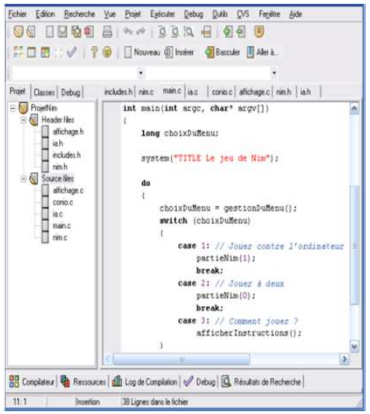


Joystick

Lumière

Ultrason

PC



BUS CAN / Raspberry / L3PRO SETA

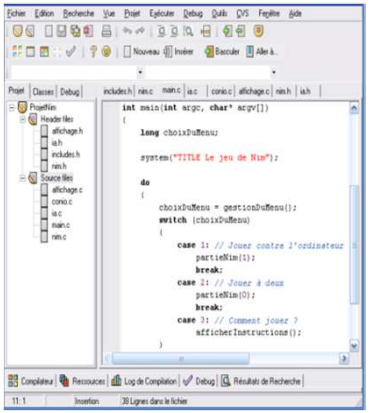
Combiné PSA
Model 407

Raspberry Pi + shield CAN

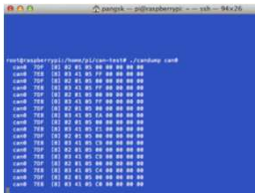
CAN H

CAN L

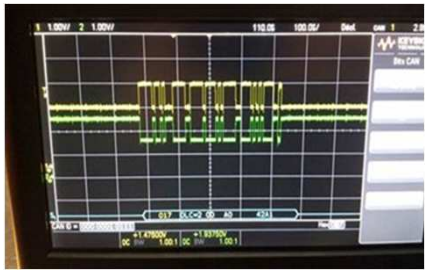
Raspberry Pi + shield CAN



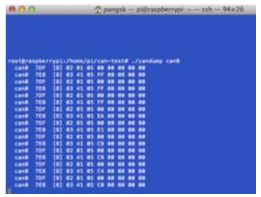
Busmaster

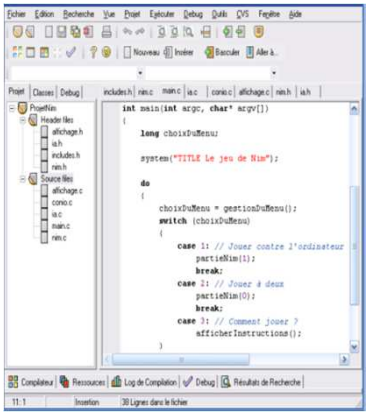


Oscillo :
Trame série CAN



Busmaster

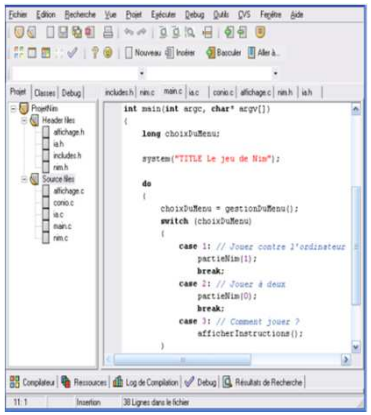




Temps réel / L3 PRO SETA
OS trampoline

Actuellement :
légo nxt mindstorm

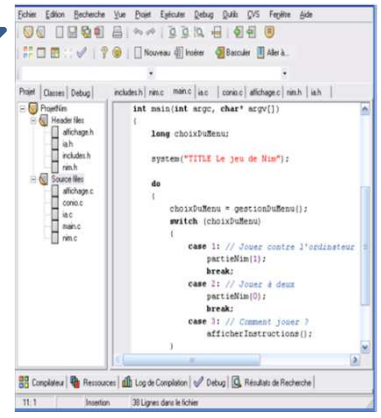
Processeur Arm7
+ Ecran LCD
+ Capteur ultrasons
+ clavier 4 touches



Prévision 2019 :
Robot Open Source

+ Ecran LCD + Ultrason + Joystick

OS Trampoline sur
Arduino uno



Instrumentation sur le Kart

Systèmes embarqués / Architecture CAN 2017

Calculateur "devant du véhicule"

Arduino Uno + shield CAN

Luminosité + frein + distance

CAN H

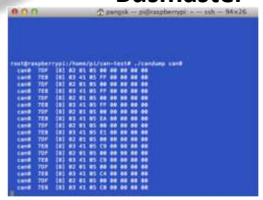
CAN L

Calculateur "tableau de bord"

Arduino Uno + shield CAN + écran tactile

PC

Busmaster



CAN H

CAN L

Calculateur « Arrière du véhicule"
BSM (Boitier de servitude Moteur)

Arduino Uno + shield CAN

Feux + vitesse + t° moteur

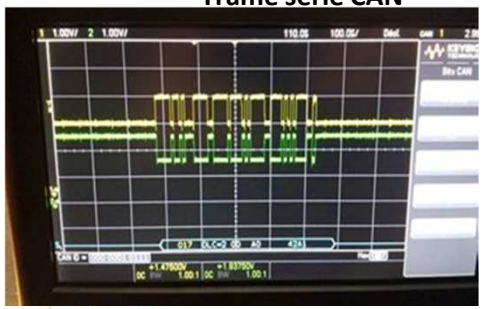
CAN H

CAN L

BSI (Boitier de Servitude Intelligent)
-> TEMPS REEL

Raspberry Pi + shield CAN

Oscillo :
Trame série CAN



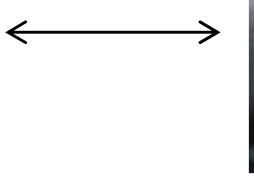
Projet L3 PRO SETA - 2018
Dialogue entre open source et propriétaire

Nouveaux éléments propriétaires :

Comodo

combiné

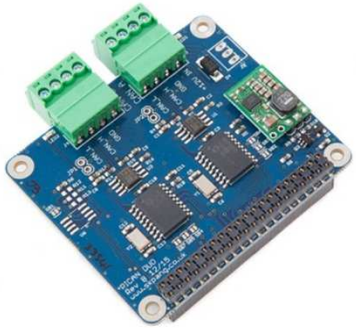
Module de diagnostique



OBD du kart

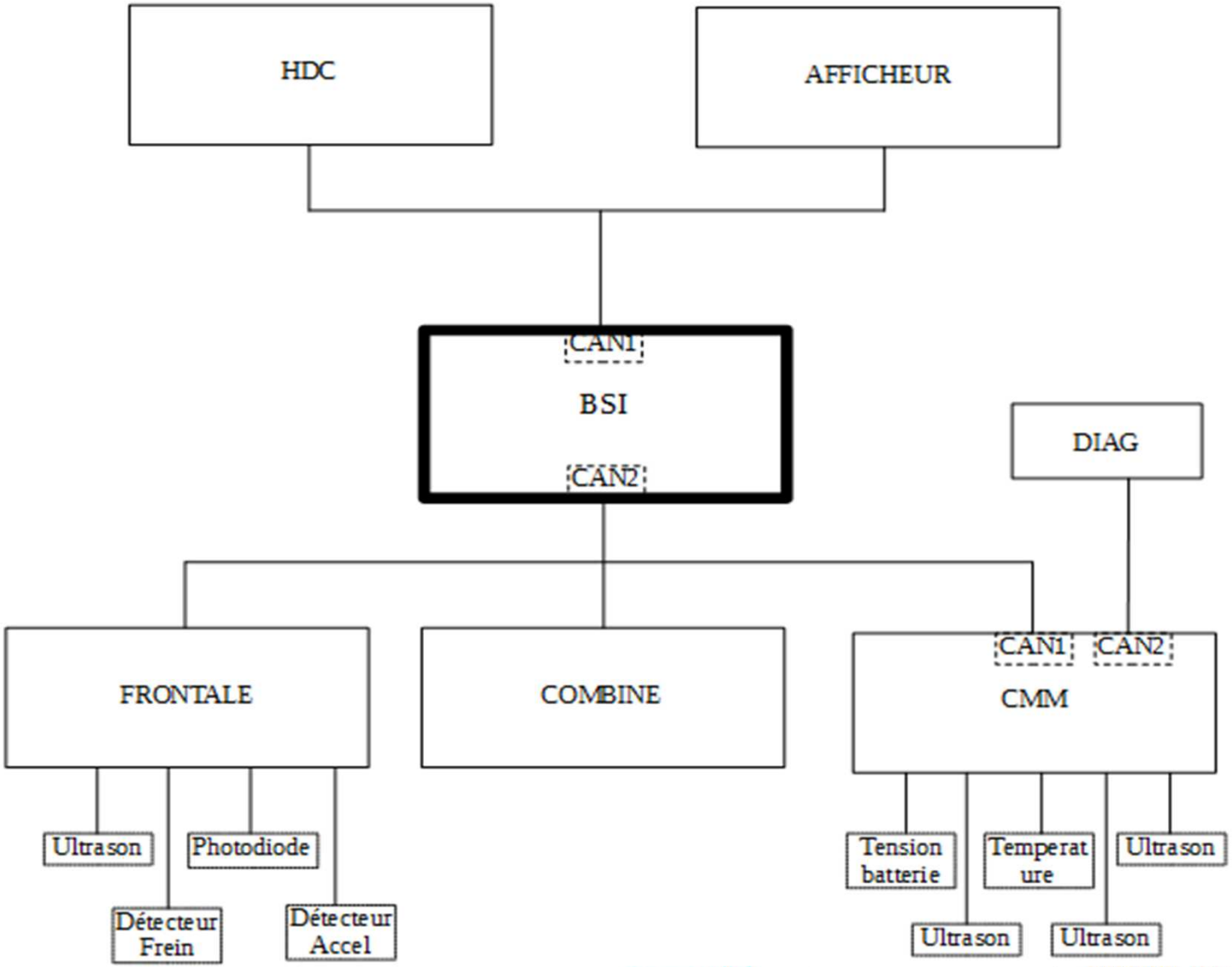
Nouveaux éléments open source :

Dual CAN



Arduino MEGA

Architecture kart - 2018



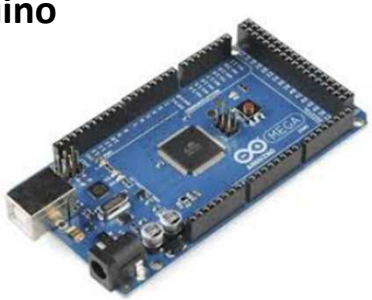
Projet L3 PRO SETA - 2017/2018

ADAPTATION A L'OSV

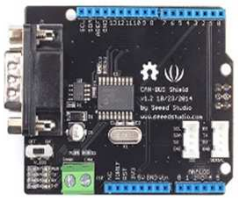
L3 PRO SETA 2018/2019

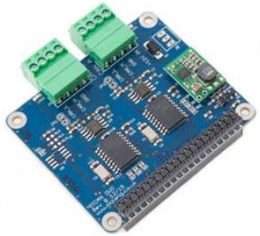
Difficulté : être facilement amovibles

Arduino



Shield CAN



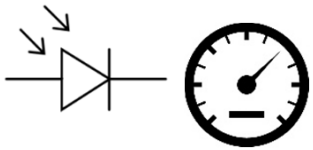


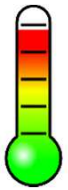
OSV

Raspberry Pi

PyCom

Tablette





ADAPTATION A L'OSV
Architecture probable - 2018/2019