UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Departament d'Enginyeria de Sistemes, Automàtica i Informàtica Industrial

CAN Frames for controlling the iWheel

CAN configuration

CAN Bus speed: **1MBps**
Sample point: **62.5%** of a bit time.

Setpoints write commands

	CAN Frame ID (dec)	Data B0	B1	B2	B3	B4	B5	B6	B7
LEFT	266	Left Motor Setpoint Type (0: Free, 1: Speed, 2: Current)	Left Speed Setpoint MSB (int16s, mm/s)	Left Speed Setpoint LSB (int16s, mm/s)	Left Current Setpoint MSB (int16s, mA)	Left Current Setpoint LSB (int16s, mA)			
RIGHT	298	Right Motor Setpoint Type (0: Free, 1: Speed, 2: Current)	Right Speed Setpoint MSB (int16s, mm/s)	Right Speed Setpoint LSB (int16s, mm/s)	Right Current Setpoint MSB (int16s, mA)	Right Current Setpoint LSB (int16s, mA)			

Important notes

- Setpoint frames (write commands) must be sent periodically at a frequency higher than 1 frame/second. There is a 1 second timeout that make the motor stops if no more frames are sent.
- Range for current Setpoint is +/- 2000mA

Max Strom 2A
Was ist max Speed ?

Variables read commands

* RPM

	CAN Frame ID (dec)	Data B0	B1	B2	B3	B4	B5	B6	B7
LEFT	256	Speed MSB * (int16s, ~~RPM~~)	Speed LSB * (int16s, ~~RPM~~)						
	257	Battery Voltage (int8u, dV)	Controller Temperature (int8u, ºC)	Odometry Ticks MSB (int32s)	Odometry Ticks (int32s)	Odometry Ticks (int32s)	Odometry Ticks LSB (int32s)	CPU Usage (int8u, %)	
RIGHT	288	Speed MSB * (int16s, ~~RPM~~)	Speed LSB * (int16s, ~~RPM~~)						
	289	Battery Voltage (int8u, dV)	Controller Temperature (int8u, ºC)	Odometry Ticks MSB (int32s)	Odometry Ticks (int32s)	Odometry Ticks (int32s)	Odometry Ticks LSB (int32s)	CPU Usage (int8u, %)	
	290	Estimated Pose X (int16s, mm)	Estimated Pose X (int16s, mm)	Estimated Pose Y (int16s, mm)	Estimated Pose Y (int16s, mm)	Estimated Pose Z (int16s, mm)	Estimated Pose Z (int16s, mm)	Estimated Pose PSI (int16s, mrad)	Estimated Pose PSI (int16s, mrad)

Important notes

- Odometry: 60 ticks/rotor revolution
- Variables are send out without request periodically (40ms period for: 257,289,290 and 4ms period for: 256,288)

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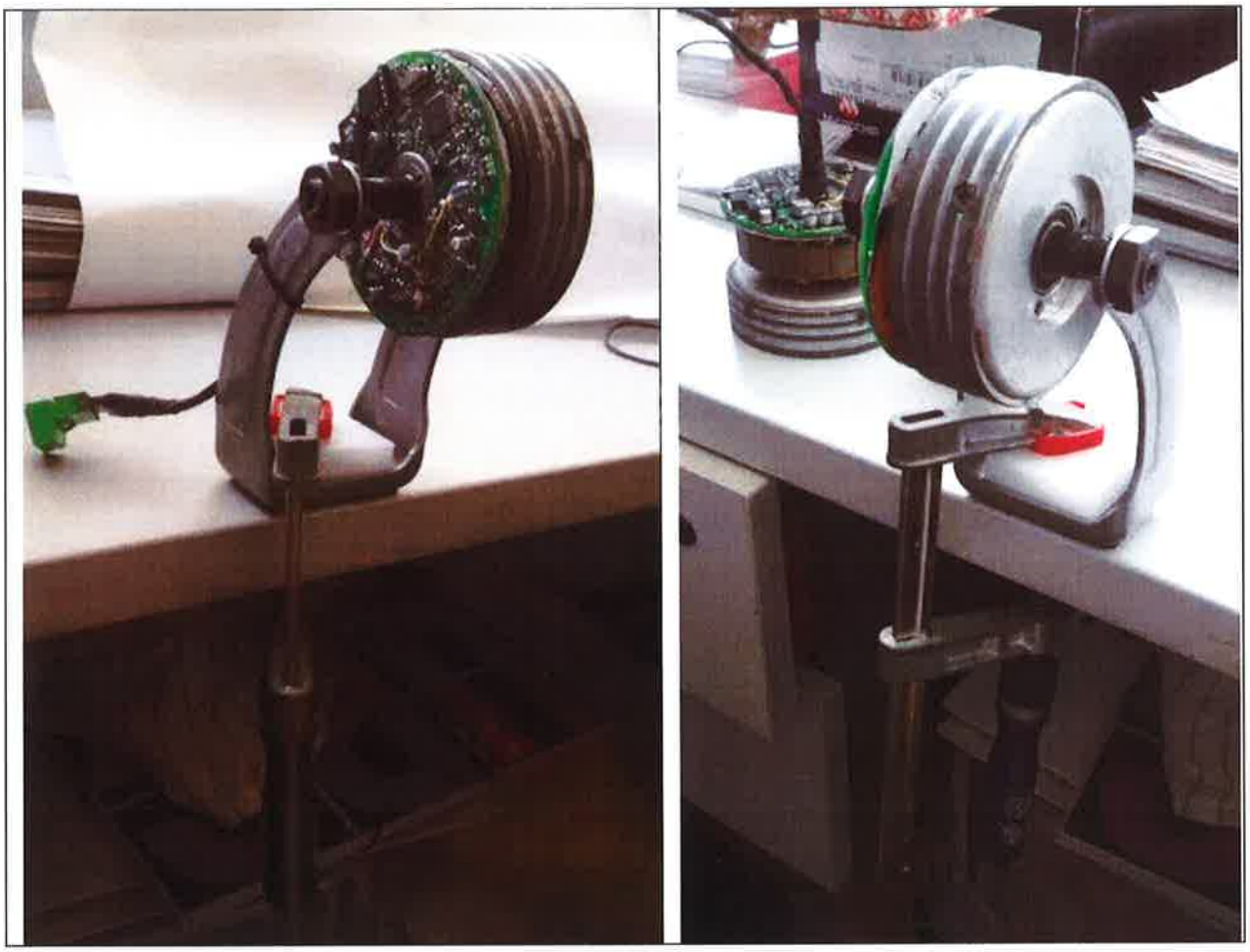
First trials with the iWheel attached to a table



On the pictures above you can see the iWheel component without tire-

We have assembled the shaft of the iWheel to a fork to facilitate you to attach this set to your table by using a clamp.

Important:

You will receive 2 iWheels, the once assembled to the fork will be programmed as a "Right iWheel", the other one will be programmed as a "Left iWheel"

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Allocating the rotor in the middle

Pouring the orange colored polyurethane resin

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iWheel with cover