CASP.ER Engine Reserch Explained

Andreas Fransson*,
Sweden

I. Introduction

We were supplied with a finished platform consisting of:

- (1x) Plexi Glas Frame (plate)
- (4x) Plastic Wheels
- (1x) 8 Pack AA battery holder
- (1x) Arduino Mega
- (1x) Accelerometer
- (2x) Odometers
- (2x) Ultrasonic sensors (arduino Basic)
- (1x) IR Sensor (Arduino Basic)
- (1x) Bluetooth module (Arduino Basic)
- (4x) DC Motors with gearboxes

And a finished Arduino Library containing all the methods for simplifying usage and examples on how to use it. And right from the start we were determined to discard this platform and build our own more powerful platform, more flexible and directed towards a community that already exists. Enter the RC car.

May, 2016

II. Research method

After trying to build a chassi with custom solutions for steering and wheels we dumped the idea of "from bottom up" and bought a cheap 1/10 scale RC car of the internet. we stripped the DC steering engine, Controller card, battery and drive engine and started putting in parts selected by us. We got a cheap ESC (Electronic Speed controller) and a few engines, a servo and a Arduino Uno.

insert engine brushless explained

insert engine brushless + sensor explained

insert engine brushed explained

insert Servo steering explained

III. Results

The result is a "multitool" platform for a wide range of communities, RC entusiasts can simply get the minimum specs and replace their radio control with wifi to one of the provided clients, or develop a client of their own using the open protocol's supplied. or for just about 70 bucks get both that and a video stream from their RC car. Or people more intrested in the sensory platform applications the MotorController Library allso supports brushed motors or Sensored brushless motors so more precise control and a wide range of sensors can easely be included.

IV. Conclusion

Before getting your hands dirty diggin in to the CASP.ER project look at all the hardware requierments for your project and if you feel it helps follow our guide with recomendations. This is what we came to belive to be the balance needed to supply diffrent types of platorms.

References

[1] CASP.ER GitHub Group *https://github.com/SEMT2Group1*.
[2] IOS Client *https://github.com/SEMT2Group1/CASPER_IOS_Client*.
[3] Android Client *https://github.com/SEMT2Group1/CASPER_Android_Client*.
[4] Windows Client *https://github.com/SEMT2Group1/CASPER_WP_Client*.
[5] Socket Server *https://github.com/SEMT2Group1/Socket_Server*.
[6] Lidar Arduino Scetches *https://github.com/SEMT2Group1/Arduino_Sketchesf*.

This document has been written using the IEEE standard LaTeX.