

A.R.T. (Autonomous Robot Toy)

Ricky Ng-Adam
Xinchejian.com
2011

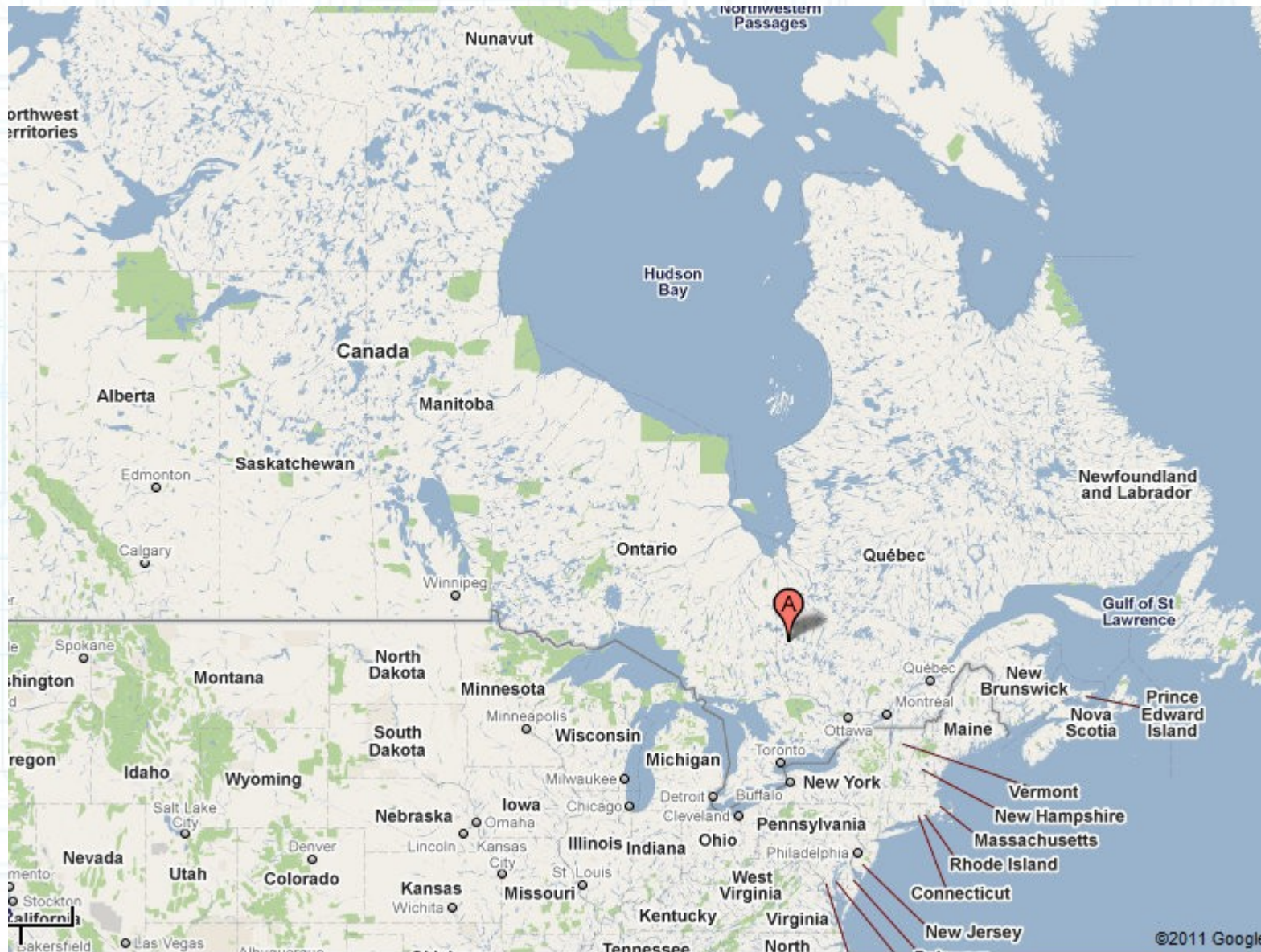
Who am I?

Ricky Ng-Adam

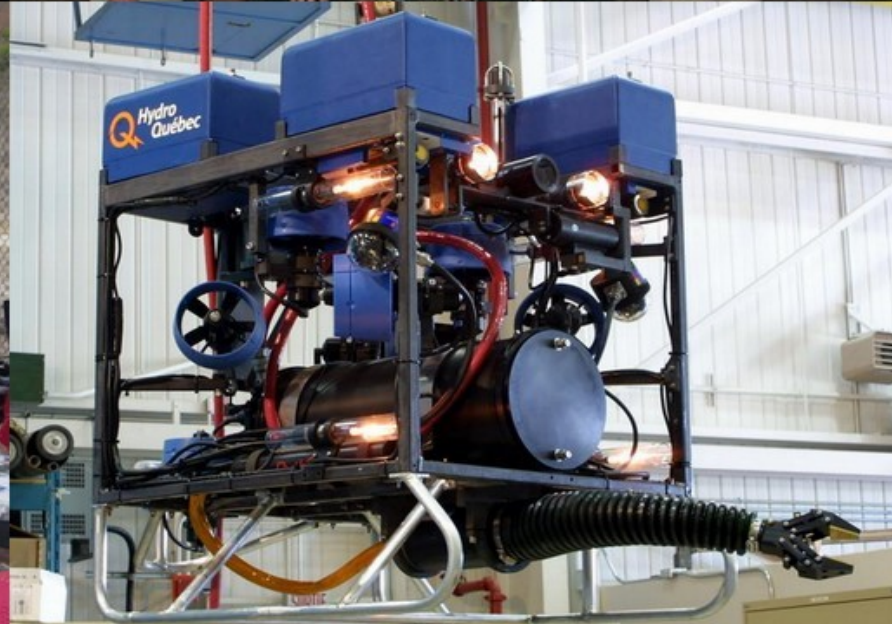
伍思力

rngadam@gmail.com

Quebec, Canada



Ricky and Robots!



A.R.T.

- **Autonomous**
- **Robot**
- **Toy**

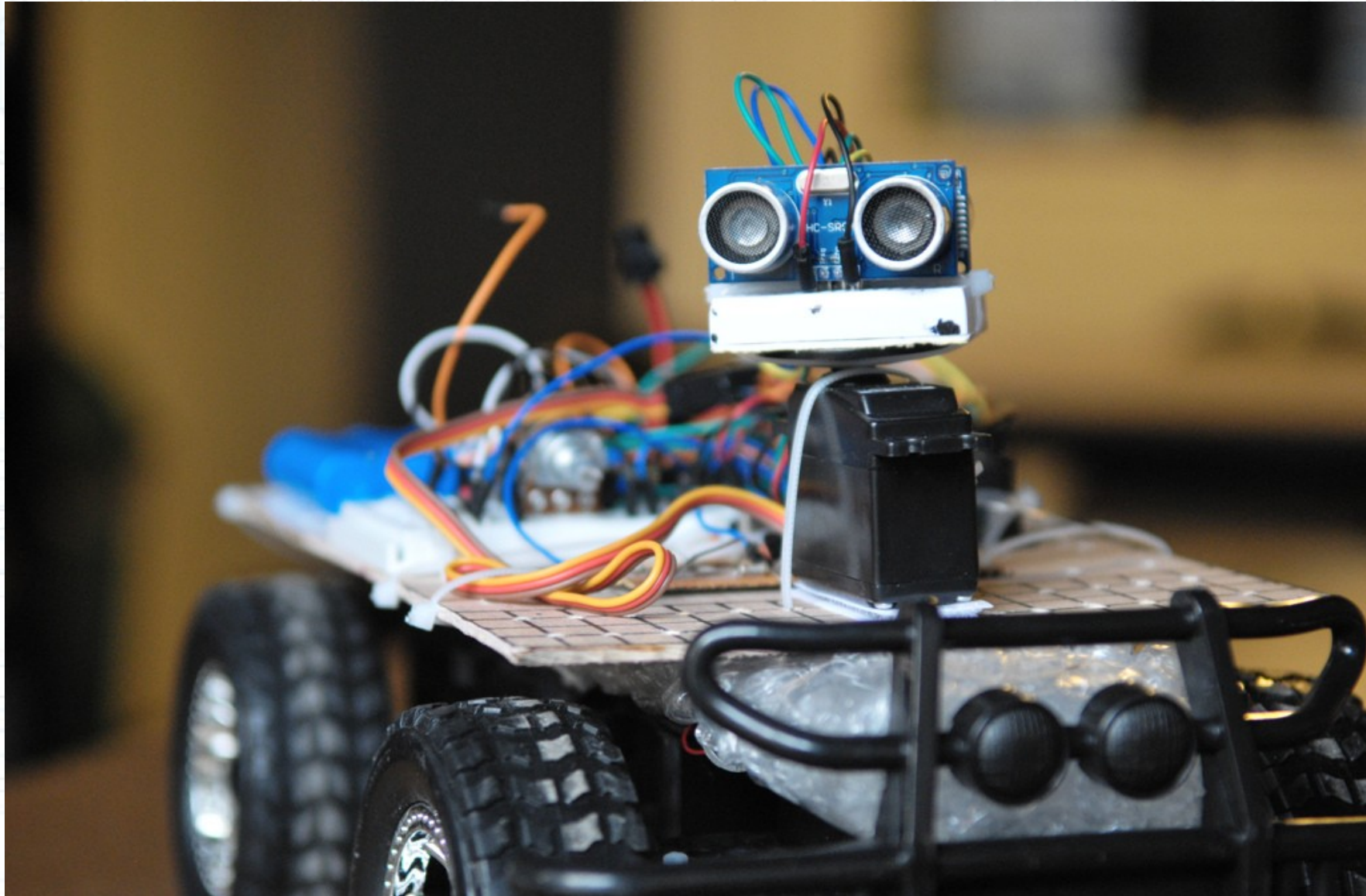
Before



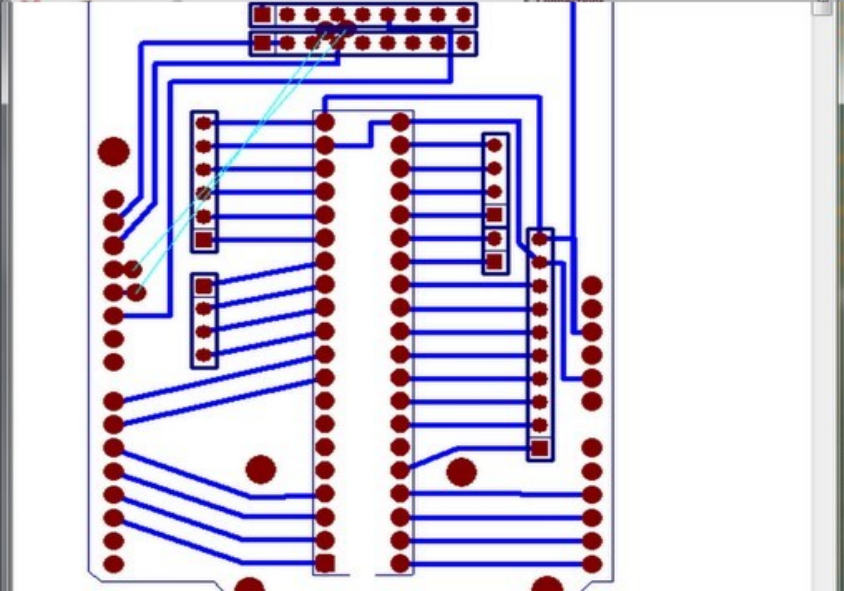
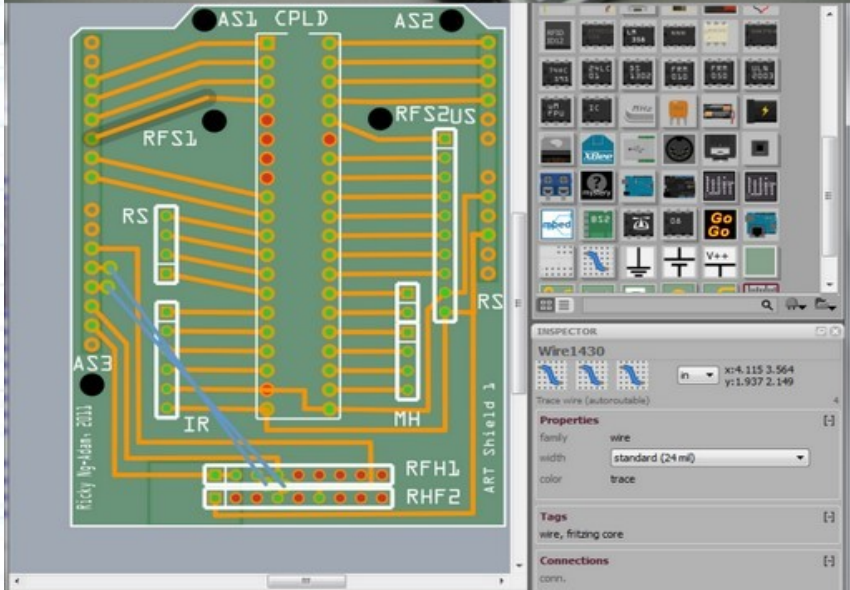
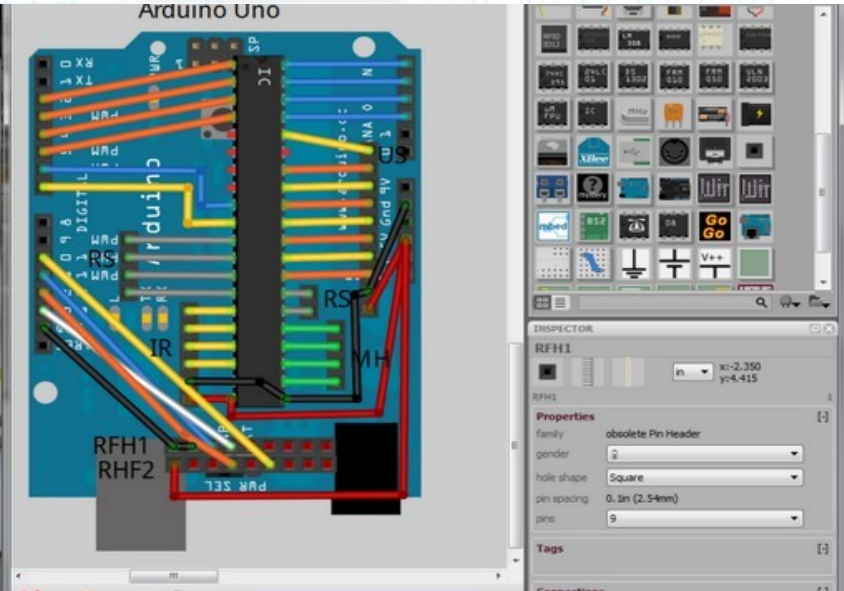
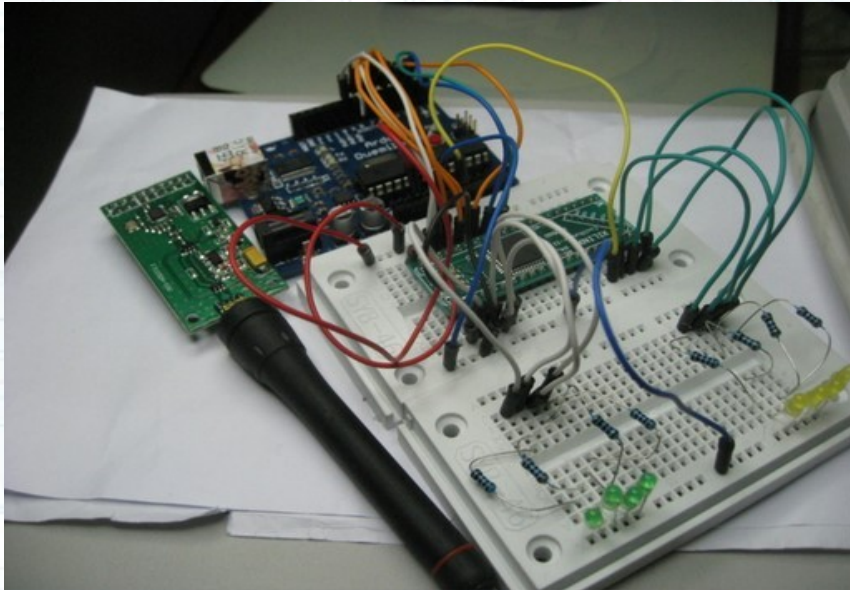
After



Current state



ART v5





Steps



People involved




Others...


www.pbelconsulting.ca

High Brightness LED Lighting

High Brightness LED Lighting with Digital Dimmable Driver

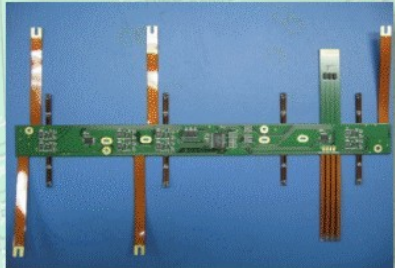


16 Channel 240W LED Driver

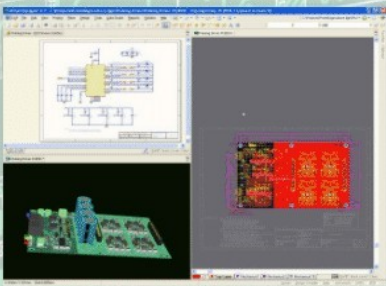


Electric Car Li-Ion Battery

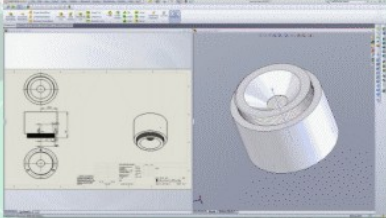
Flexible Hybrid PCB 4 Layers
Li-Ion Cell Balancer for Electric Vehicle.




Schematic Capture, PCB Design and Mechanical CAD Model



3D Mechanical Drawing




New CNC Machining*



* Experimental


Connectivity and Interface



Interface Labview with a Texas Instruments DSP and DDS (Digital Direct Synthesis) to Create AM, FM, SSB, FSK broadband signal for telecommunication

Integration of New Technologies

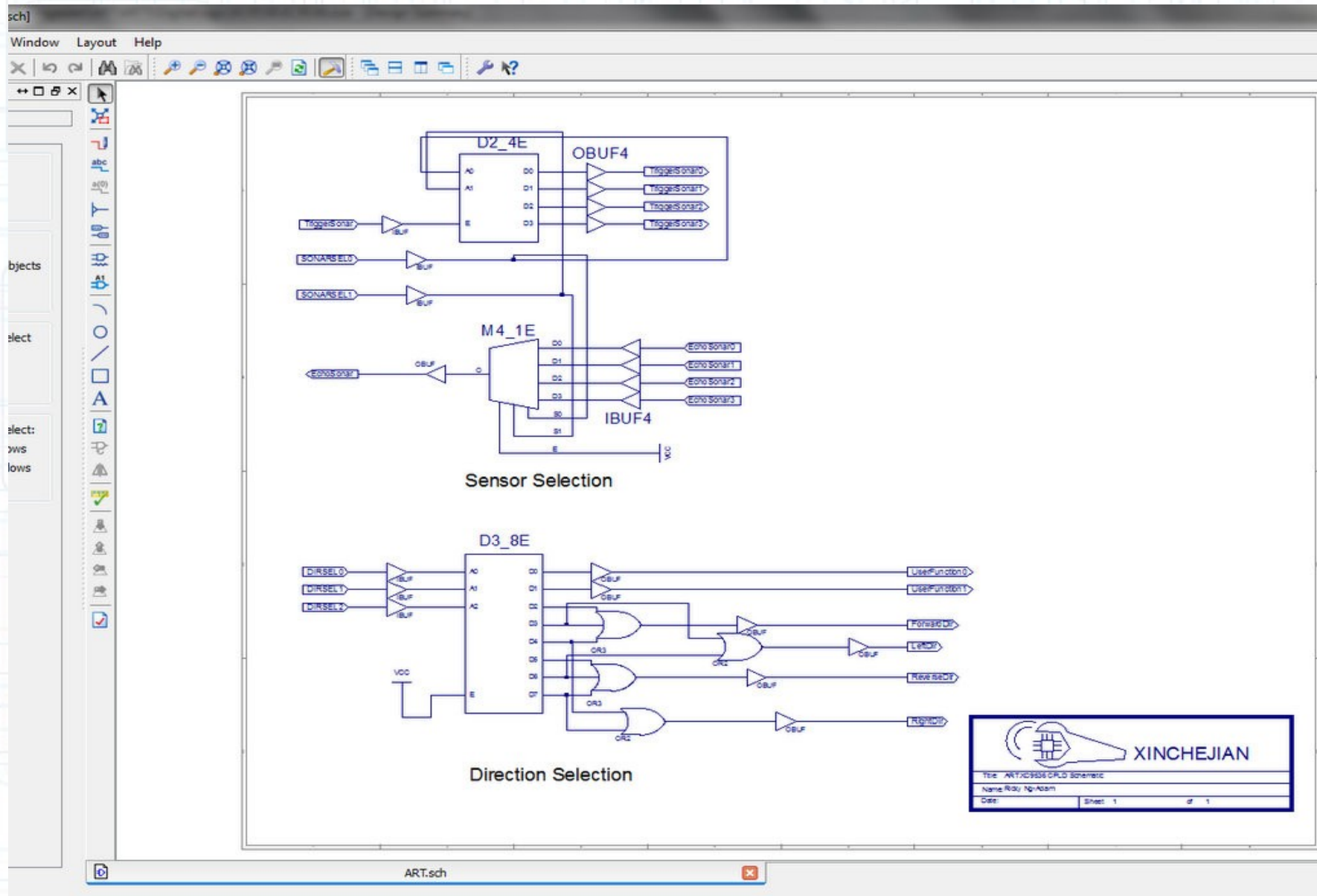
Prototype PCB of a patented proof of concept for advanced integrated circuit test. Both PCB integrate respectively a Spartan II and Spartan-3 FPGA.



Budget

Description	Price/Unit	Quantity	Total
RC Toy Car (with 400mAh battery)	67.00	1	67.00
Arduino Uno (with Atmega 328p)	178.00	1	178.00
RFC1100-A CC1101 RF Transceiver with Power Amplifier	70.00	1	70.00
4 * Ultrasonic sensors HC-SR04	37.00	4	148.00
4 * Infrared sensors E18-D80NK	30.00	4	120.00
Xilinx XC9536 CPLD in a 40 DIP pin package	42.00	1	42.00
Mini-breadboard	3.00	1	3.00
700mAh, 6V, Rechargeable NiCad	15.00	1	15.00
Cabling	12.00	1	12.00
Motor shield (L298N)	68.00	1	68.00
Arduino I/O expansion board	48.00	1	48.00
Total		116.64	771.00
		USD	RMB

EE Degree?



More information

- Ricky Ng-Adam, rngadam@gmail.com
- <http://www.xinchejian.com>
- <https://github.com/rngadam/ART>
- <http://xindanwei.com>