
# sky robotics

empowering creators of tomorrow

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# $10B industry in 2014

**Strategic investments**


- ✓ Robotics pickup challenge
- ✓ Robotics warehousing


- ✓ Acquired 13 robotics companies in 2013


- ✓ Promotes Zeroth processor for robotics
- ✓ Robotics accelerator program (startups)


- ✓ 21st-century-robot-program

**Consumer products**


- ✓ Revenue streams in the order of $0,5Bn


- ✓ $45 Million funding on June 1, 2015

$10B industry in 2014

Strategic investme

amazon

✓ Robotics pickup challenge

✓ housing

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ips)

**by 2020:**

**>$100Bn**

Consumer products

iRobot

✓ Revenue streams in the order of $0,5Bn

sphero

✓ $45 Million funding on June 1, 2015

# robot development is slow and expensive

## Development process as it is now


- Multi-disciplinary expertise
- Hard to find a capable team
- Hardware development is risky!

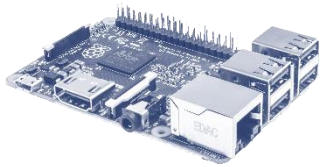
Difficult integration
Complex cabling

product
novelty

# robot development using our system

## Development process as it is now


## Development process using our system, OPRA



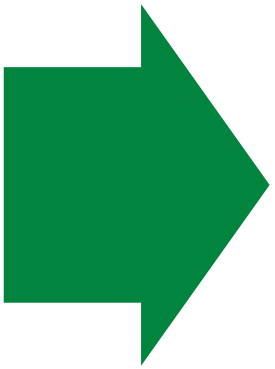
Optional high-level controller:
- Raspberry Pi
- BeagleBone
- Snapdragon
- Standard PC


OPRA70 Motor



1-cable solution reduces complexity:
- Power
- Communications
- Plug & play

Adapter to easily connect 3rd Party hardware (Cameras, sensors, manipulators)



- ✓ Hardware building blocks
  - ✓ Modular, customizable and expandable
  - ✓ Cost optimized for production (as OEM)
- ✓ Comes with Plug&Play software layer
- ✓ Reduced time to market (& CE pre-certified)
- ✓ Works with any high-level controller
- ✓ An end-to-end robot building tool!

# opra vs existing solutions

| | High performance & small size | Ease of use | Sensor integration | Open to add-ons | Cost |
|---|---|---|---|---|---|
| opra | ✓ | ✓ | ✓ | ✓ | $$ |
| DYNAMIXEL | ✗ | ✓ | ✗ | ✗ | $$ |
| Dynamixel-alike & low cost | ✗ | ✓ | ✗ | ✗ | $ |
| maxon PRECISION MOTORS / Elmo Motion Control | ✓ | ✗ | ✗ | ✗ | $$$ |
| GALIL / NATIONAL INSTRUMENTS | ✓ | ✗ | ✗ | ✗ | $$$$ |

## ✓ Short term strategy: Grants & custom robots

- Government & other grants through academia
- Build-To-Order robots
- Robots as a service

## ✓ Mid term strategy: Sell robotic arms

Performing, modular, safe and easily programmable

## ✓ Long term strategy: Hardware sales & licensing

- Develop OPRA to be the OEM parts of robots
- High volume hardware sales
- Licensing for commercial use – recurring revenue

# mid-term market strategy

Use OPRA-based arms for small production lines:

- ✓ Perform simple tasks: assemblies, manipulation
- ✓ Work alongside humans for easy tasks
- ✓ Overall goal: reduce production line cost

Why use OPRA?

- ✓ Good performance
- ✓ Safe to work (force control)
- ✓ Task programming by example
- ✓ Image processing and machine learning

# combination closed & open source

- ✓ Closed source for core components
  - Release selected components only
  - Customization and expandability
  - User level application
- ✓ Provisional patents (in filing procedure)
  - Form factors
  - Mechanical combinations
  - Communication protocols (for licensing in the future)
- ✓ Hardware-locked software

# well bonded team of experts

Alexandros Nikolakakis, M.Sc
CEO & Founder
Hardware electronics design

Mechanical Engineer NTUA
Product design
Working on control systems / electronics since 2009

Pavlos Stavrou PhD cand.
CTO & founder
OPRA firmware / software

Software Engineer
PhD cand. in image processing, UOA (to be presented in 2015)
Working on embedded control systems since 2009

Kostas Karakasiliotis PhD
founder
Chief Mechanical Engineer

Mech. / Electr. Engineer
PhD & post-Doc in robotics, EPFL
Mechanical design since 2007

Giannis Roussos, PhD
founder
OPRA firmware / software

Mechanical Engineer NTUA / PhD in control systems, NTUA
Working on control systems / electronics since 2010
Linux RTOS

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Yiannis Giokas
Investor and business advisor

Founded Crypteia networks in 2011
EXIT in 2014 – Currently CEO

Legged Robotics
Autonomous Systems Lab

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

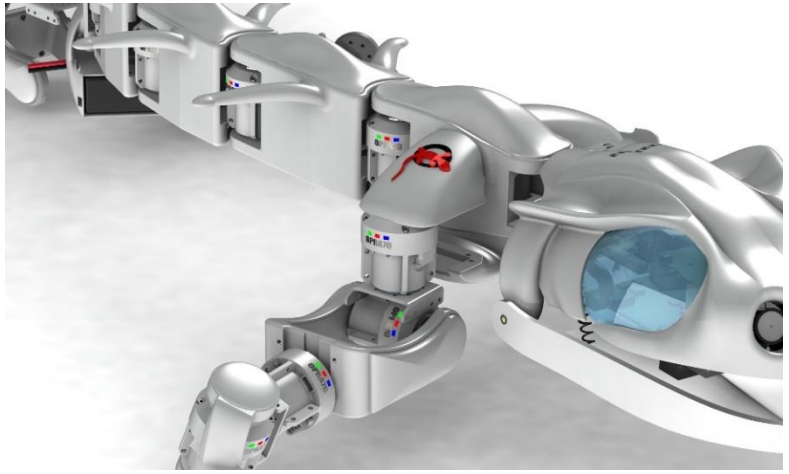
- Received an EU grant for joint venture
- ETH's new robot driven by our electronics!
- Not released to the public yet
- ETH spinoff will use our electronics

Legged Robotics
Autonomous Systems Lab

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

- ✓ Future EPFL BioROB robots based on OPRA system
- ✓ Grant proposals submitted



Collaborations we are working on:

QUALCOMM®

brain
CORPORATION

# 2015: an exciting year so far!

techstars

QUALCOMM Robotics Accelerator

April 2015

Founded SkyRobotics Inc. (Delaware)

May 17th 2015

Qualcomm - Techstars
- ✓Amazing connections
- ✓Re-evaluation of business plan
- ✓Filing patents
- ✓Sourcing of components
- ✓Final prototype development

Jan-May 2015

MIT ENTERPRISE FORUM GREECE
- ✓Exposure
- ✓Customer acquisition strategy
- ✓New contacts
- ✓Business focus

SkyRobotics electronics control ETH's new robot

May 26th 2015

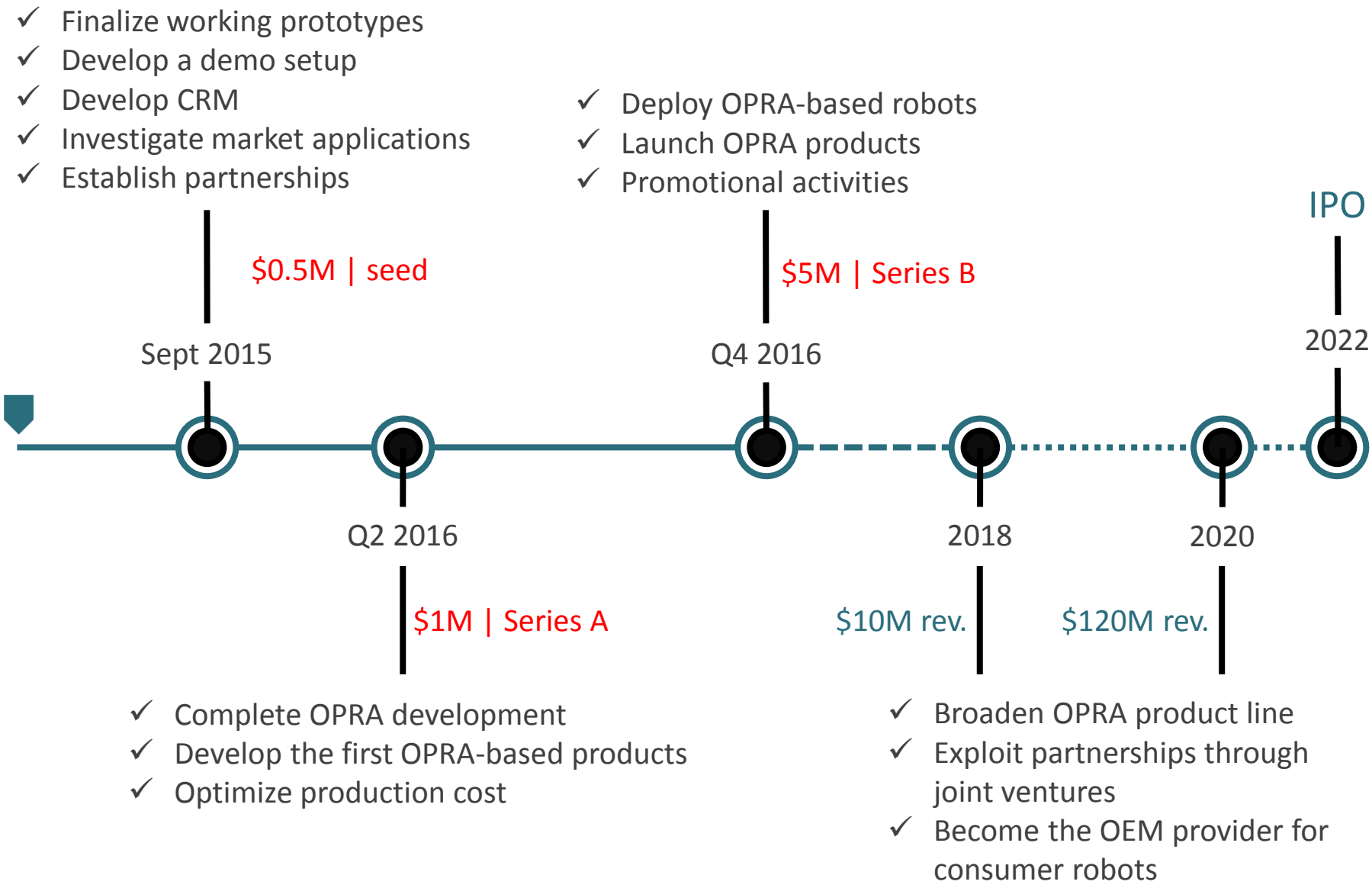
Moved to San Diego:
$120K funding!
Qualcomm program starts

MITEF finalists!

Sept 2015

End of Qualcomm program
Raising money
RE-BRANDING!

# roadmap


✓ Finalize working prototypes
✓ Develop a demo setup
✓ Develop CRM
✓ Investigate market applications
✓ Establish partnerships
$0.5M | seed
Sept 2015
Q2 2016
$1M | Series A
✓ Complete OPRA development
✓ Develop the first OPRA-based products
✓ Optimize production cost
✓ Deploy OPRA-based robots
✓ Launch OPRA products
✓ Promotional activities
$5M | Series B
Q4 2016
2018
$10M rev.
✓ Broaden OPRA product line
✓ Exploit partnerships through joint ventures
✓ Become the OEM provider for consumer robots
2020
$120M rev.
IPO
2022