





Fooling around with ~~x~~Toys

12/12/2013

K. Yang



Shop by Department

Search All drone

Camera & Photo Deals Best Sellers Digital SLRs Lenses Compact Systems



A new deal every



onics Guide



Roll over image to zoom in

DJI Phantom 2 Vision+ Quadcopter for GoPro

by DJI

★★★★☆ 206 customer reviews

135 answered questions

List Price: \$679.00

Price: \$469.00 & FREE Shipping. Details

You Save: \$210.00 (31%)

In Stock.

Sold by Hobby Toy Store available.

- Complete quadcopter ready to fly out of the factory and ready to go. Includes remote control, battery, attach the propellers and batteries to the remote control.
- Fun flying by itself or in action. Tested with Hero2, Hero3 and Hero3+ models, sold separately. Produce dramatic cinema-quality results from the air! Note: Wi-Fi streaming from a camera is not possible because it may interfere with the Phantom's remote control.
- Outdoor flight is made possible by advanced GPS positioning that compensates for light wind. The Phantom has a fail-safe



Background

- KAP
- Embedded System
- Constructive Time Passing
- Drip Irrigation



An Episode

스마트폰이용 원예시설 생육환경조성기술시범	업무담당자	
	서장은	644-4148

□ 목 적

- 스마트기기를 통해 장소 및 시간에 구애 받지 않고 원예시설을 모니터링하고 제어하는 기술 도입

□ 추진방향

- 스마트기기를 활용하고, 환경제어가 가능한 시설을 갖추고 인근지역에 파급효과가 높은 농업인 시행

□ 추진계획

- 사업대상 : 이천 관내 재배기술이 높고 사업의욕이 강한 원예 농업인 등
- 규 모 : 개소당 0.1ha이상
- 시범요인
 - u-IT이용 원예시설 원격 감시 환경제어시스템 기술보급
 - 스마트폰으로 원격조작하고 작동상황은 카메라 추적 영상으로 바로 확인
 - 온실 환경 및 기기 이상발생시 관리자에게 통보
- 지원내역
 - 제어부(수집서버, 원격단말장치, 환경제어프로그램, 제어PC 등), 센서부(온도, 습도, CO₂ 통합센서 등), 제어패널 및 관제용 네트워크 카메라 등

(단위 : 개소, 천원)

세 부 사 업 명	사업량	사업비 구성				
		계	국비	도비	시비	기타
스마트폰이용 원예시설 생육환경조성기술 시범	3	35,000	17,500	-	17,500	-

□ 기대효과

- 컴퓨터와 스마트폰을 이용하여 온실환경 및 작동기 원격 모니터링으로 안정생산하여 농가소득 향상

스마트폰이용 원예시설 생육환경조성기술시범	업무담당자	
	서장은	644-4148

□ 목 적

- 스마트기기를 통해 장소 및 시간에 구매 받지 않고 원예시설을 모니터링하고 제어하는 기술 도입

□ 추진방향

- 스마트기기를 활용하고, 환경제어가 가능한 시설을 갖추고 인근지역에 파급효과가 높은 농업인 시행

□ 추진계획

- 사업대상 : 이천 관내 재배기술이 높고 사업의욕이 강한 원예 농업인 등
- 규 모 : **개소당 0.3ha이상(자동화하우스 또는 유리온실)**
- 시범요인
 - u-IT이용 원예시설 원격 감시 환경제어시스템 기술보급
 - 스마트폰으로 원격조작하고 작동상황은 카메라 추적 영상으로 바로 확인
 - 온실 환경 및 기기 이상발생시 관리자에게 통보
 - 기상청에서 제공하는 기상을 연동함으로써 외부기상 상황 모니터링
- 지원내역
 - 제어부(수집서버, 원격단말장치, 환경제어프로그램, 제어PC 등), 센서부(온도, 습도, CO2 통합센서, EC, 수분 등), 제어패널 및 관제용 네트워크 카메라 등

(단위 : 개소, 천원)

세 부 사 업 명	사업량	사업비 구성				
		계	국비	도비	시비	기타
스마트폰이용 원예시설 생육환경조성기술 시범	1	35,000	17,500	-	17,500	-

□ 기대효과

- 컴퓨터와 스마트폰을 이용하여 온실환경 및 작동기 원격 모니터링으로 안정생산하여 농가소득 향상

Requirements

- Cost-wise viable
- Off-the-shelf parts
- Potentially extensible
- Educational
- Fun

xToys/Gadgets

- SBC/sensors/relays
- Connecting/Integrable
- Safe / Riskless
- Tangible/Visible
- *Experientia*-oriented: Robots/sUAS
- Fun/Creative/Educational



Why

- Viable - technically, economically
- Visible/concrete
- Output-oriented
- No set rules
- Goal-aligned
- Self-motivating
- Learn by doing

SFF



Standard-ATX



Micro-ATX



Mini-ITX



Nano-ITX



Pico-ITX





Name	Price	Interfaces	CPU	Power	Graphics	RAM	Storage	USB 2.0	Storage Slots	Ethernet	Analog In	Analog Out
Arduino Uno	30	Digital GPIO 14	ATMega 328 @16 MHz	0.3W	No	2KB	32KB flash	1	No	No	12	2
Raspberry Pi	35	GPIO, UART, I ² C, SPI	ARM11 @700 MHz	3.5W	Broadcom VideoCore IV	512MB	SD Card	1-2	SD	Model B: 10/100 (usb preattached)	No	No



2b Connect display

If *not* using HDMI, plug in your analogue TV or display

3 Connect input

Plug in a USB keyboard and mouse

4 Connect network

Connect to your wired network [optional]

1 Insert SD card

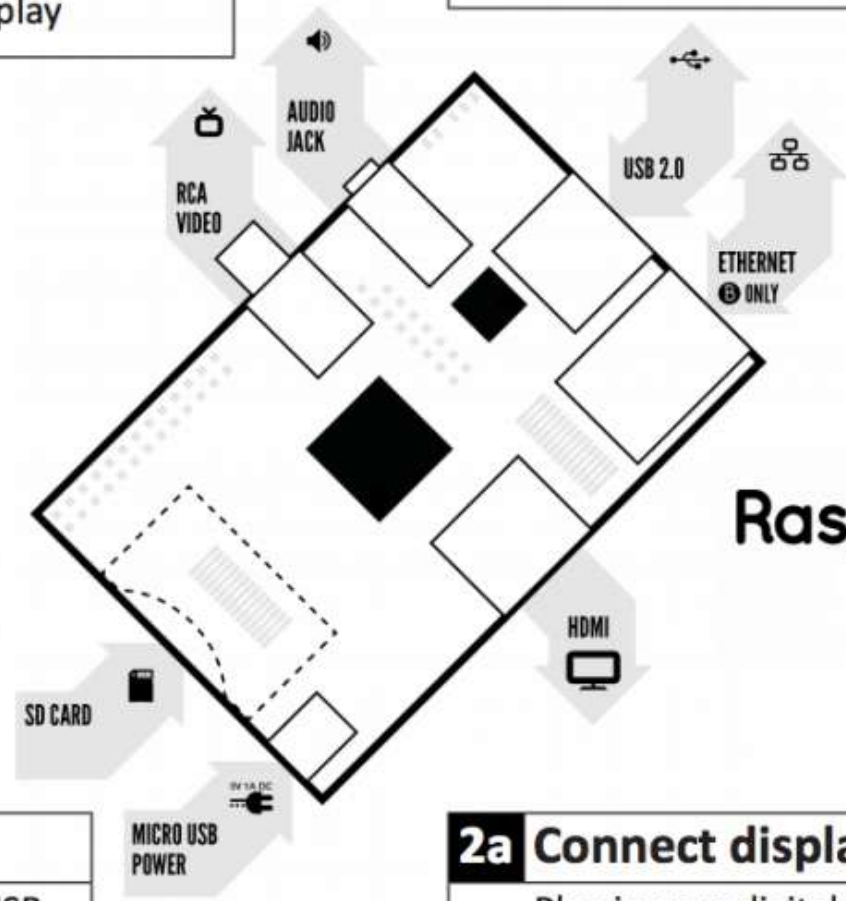
See page 3 for how to prepare the SD card

5 Power up

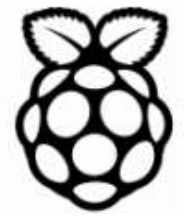
Plug in the micro USB power supply

2a Connect display

Plug in your digital TV or monitor



Raspberry Pi



Examples

- Data Gathering
- Personal Web Server
- Device Embedding
- Controlled Precision
- Precision Farming: Viticulture; Beekeeping
- Fishing
- Gadgets: Feeders; Picture Frame
- Educational Use



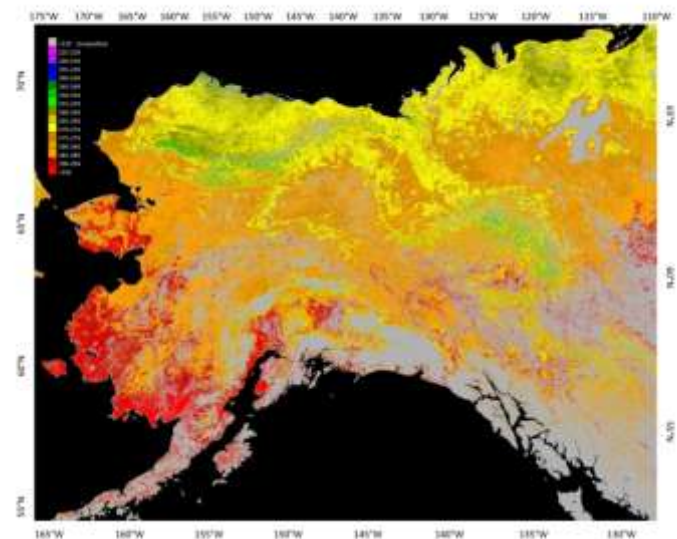
COMMERCIAL (LEGAL) UA OPERATOR SCOREBOARD



Pet Projects

- Small Sonar Fish Finder/PIR Bird Control
- Sophisticated Drip Irrigation
- Spot Sprayers [Grain Color Sorters]
- Crop-specific Ag-cartogram

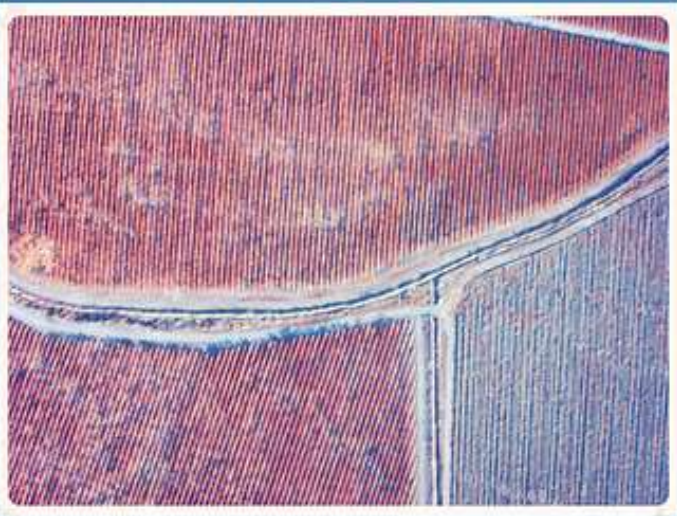
Average EOS (2000-2011)



Implications

- Extracting Capacity - Ballpark-catching; Tech visionary
- Agility - Disruptive Technology
- Paretoing Value Chains
- Instruments: Analytics; Maneuverability
- BM – Open Source; Entry Barriers? On-going Plan B; Tesla

- Negative Side? deRisking; Coping w/ Externality



- Small Unmanned Aerial System for Agriculture and Mapping applications.
- Entry-Level & Low-TCO solution. Commercial Off-the-Shelf airframe modified by IDETEC Unmanned Systems.
- Brushless Electric Motor
- Takeoff: Bungee launch. Recovery: Parachute.
- Up to 300 Ha (740 Acres) per flight.
- Max. Endurance: 30 min
- Payload options:
 - Panasonic Lumix TS5 - For Orthomosaic and Digital Surface Model.
 - Tetracam ADC Micro - For Multispectral Near Infra-Red mosaic and NDVI-SAVI maps.
- No RC Skills required. Easy to Use.
- Open access to IMU and GPS data.
- Same GCS, Payload options and Batteries used in sUAS Stardust.
- Developed by IDETEC Unmanned Systems, one of the world leaders in sUAS for Agriculture.

Tetracam ADC Micro – \$3795.00 USD

For purchase inquiries please email sales@fieldofviewllc.com

At 90 grams, the ADC Micro extends the power of advanced multispectral imaging to small Unmanned Aircraft Systems all over the planet. In so doing, Tetracam's smallest multispectral imaging marvel delivers this powerful technology – once only accessible via satellites – to agricultural, industrial and environmental users previously priced out of its use.

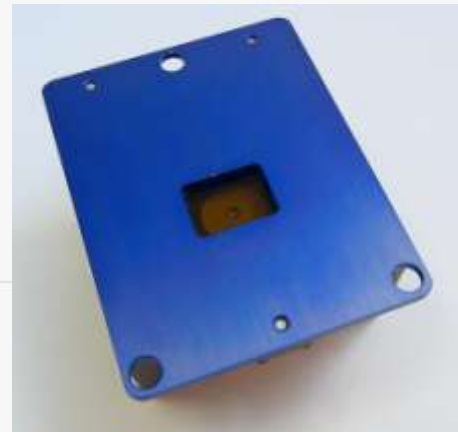
Featuring 2GB standard storage (extensible to 8 GB), fast parallel processing, ultra-low power consumption, and simple menu-organized configuration and control, the ADC Micro contains a single 3.2 mega-pixel sensor optimized for capture of visible light wavelengths longer than 520 nm and near-infrared wavelengths up to 920 nm. The camera and its accompanying software, PixelWrench2, are ideally suited for capturing and processing multispectral images of crops and forests and studying a variety of eco-systems.

PixelWrench2 provides color processing of Tetracam RAW and DCM files, complex batch processing tools, the ability to extract a variety of vegetation indices and a comprehensive suite of image editing tools.

Included:

- ADC Micro Agricultural Digital Camera
- CDROM with Installation Software and Documentation
- Product and Accessory Documentation
- USB Interconnection Cable
- Micro SD memory card
- DC Power Supply with International Adapters
- White Teflon Calibration Plate
- Test and control box assembly and Cable
- Un-terminated System Integration Cable
- Hardened Plastic Storage and Transport Case

Product Photos



It's about time!

- Population Ageing/Labor
- Technically feasible - Disruptive; Precision Ag
- Economically viable[system, labor, materials]
- Environmentally friendly – herbicide
- Socially acceptable – social mix
- Vicious Cycle – myopic
 - Chemicals[fertilizers; herbicide]
 - A Perspective Finder
 - Heavy tractors[No-till Farming]
- Other Issues

Automated Weed Control



Keywords

- Time
 - Agility, Shift, Disruptive
- Cartograms; Dashboard
 - Derisking, Newbies
- Training
 - See the unseen, *Experientia*
- Technology
 - Inventive Systems, Design

l to a

ise of

ner

cur a

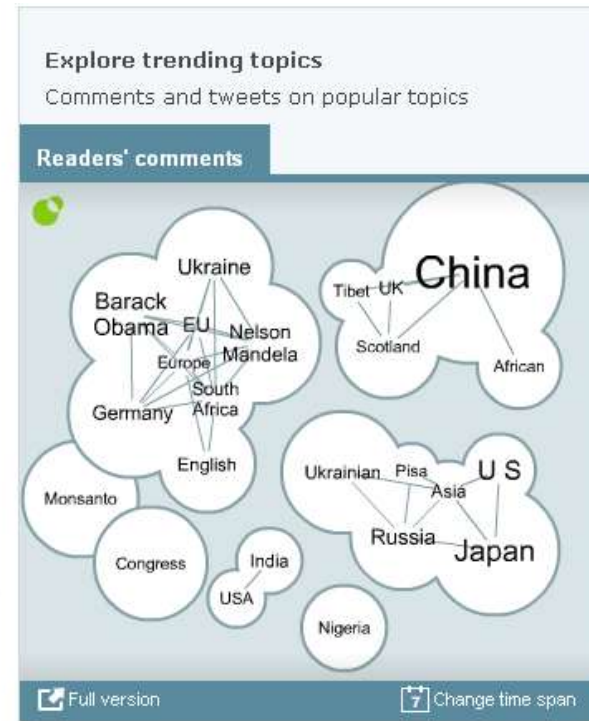
takes

r. So

oin

r. And

will



Elon Musk (born 28 June 1971)

[Early life]

Musk was born in Pretoria, South Africa to a Canadian mother and a South African father. Elon taught himself computer programming and at age 12 sold the computer code for a video game called Blaster for \$500.

Musk graduated from Pretoria Boys High School and moved to Canada in 1988 at the age of 17, after obtaining Canadian citizenship through his mother. He did so to avoid service in the South African military, and also because he concluded it would be easier to immigrate to the United States from Canada than from South Africa. In 1992, after spending two years at Queen's University, Kingston, Ontario, Musk transferred to the Wharton School at the University of Pennsylvania and received an undergraduate degree in business and a second degree in physics. He moved to California to pursue a Ph.D. in applied physics at Stanford but left the program after two days to pursue his entrepreneurial aspirations in the areas of the Internet, renewable energy and outer space. In 2002, he was naturalized an American citizen.

Make fun with xGadgets,
and this will make society
better place!