

ENHANCING THE DCS WITH EVERYDAY INTERFACE TECHNOLOGIES

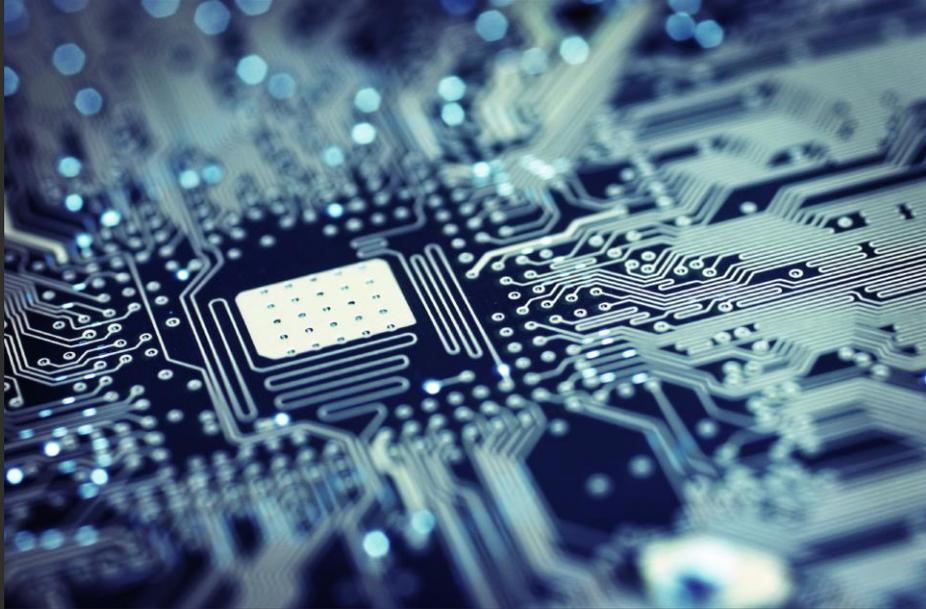
QR Code “Kinnections”

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Technology



Disk Chopper Spectrometer (DCS)

Time-of-Flight



Imagine

- 1**
- Instrument Scientist
 - Unfamiliar Equipment
 - Ask
 - Can we make this easier?

- 2**
- User
 - Search for Information
 - Could we make it faster?

- 3**
- Large Moving Pieces
 - Rotate
 - Unexpected Collision
 - Can we monitor for this?



What Technology

- ❑ Bluetooth
- ❑ RFID tags
- ❑ Barcodes
- ❑ QR Codes
- ❑ Camera
- ❑ IR Sensor
- ❑ Xbox Kinect

What Technology

~~Bluetooth~~

~~RFID tags~~

~~Barcodes~~

QR Codes



~~Camera~~

~~IR Sensor~~

Xbox Kinect



QR Code Database

- PHP
- MySQL
- HTML
- JavaScript

- Java QR Code Reader

QR Code Database

Device



Browser



Server



File System

- Images
- Documents



□ Java QR Code Reader

□ PHP □ HTML
□ JavaScript

QR Code Database Demo

- <http://ship.pajerowski.com/Diego>

QR Code Quick Links



- Helps Users
- High Use Pages
- Long URLs

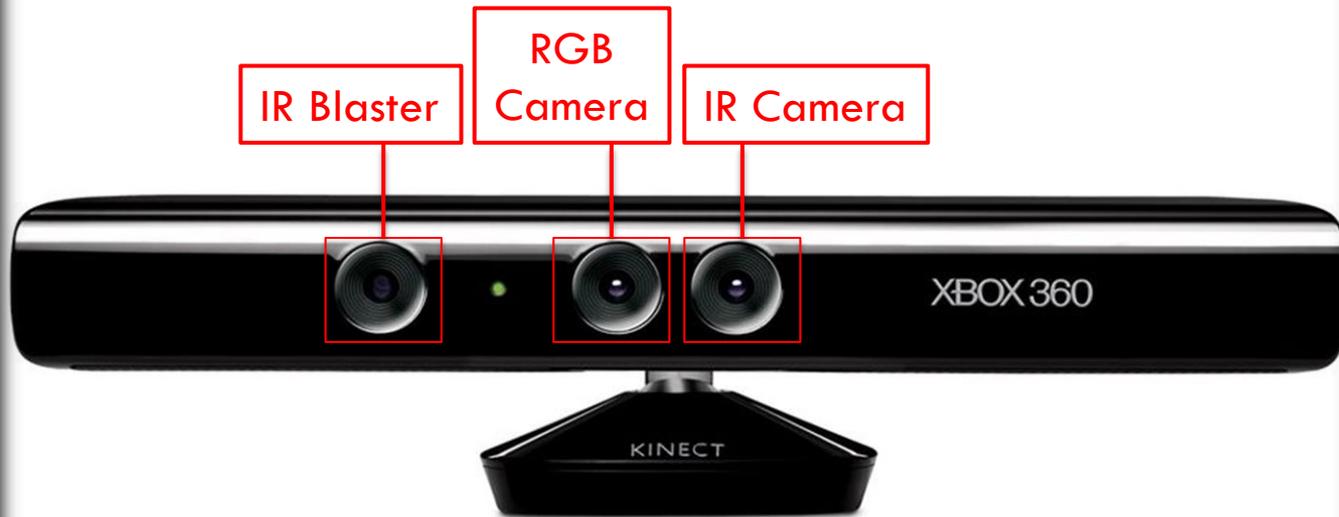
<http://www.verylongurlthatisusedalotbyusersatthedcsthatshouldhaveaquicklinkthatcouldbefixedwithaqrcode.com/definatelyneededtobefixed/thankyouMarkRichardson>

QR Code Quick Link Demo



Xbox Kinect

OPEN KINECT



IR = Infra-Red

KINECT™
for  XBOX 360.

Point Cloud

- Points in 3D Coordinate Plane
- Isolate and Track
- Detect Collisions



Kinect Demo



Looking Forward

Some possibilities for the future of the database include:

- View only mode, no login
- Mobile device style sheet
- Tweaking fields after feedback during prototyping

Some developments for the Kinect would be:

- Pattern match to a database
- Calculate the radius of curvature on cryogenic tubing to manage stress

Conclusion

- ❑ Working prototype of the database
- ❑ Prototype of the Kinect tracking system
- ❑ Low cost
- ❑ These technologies are not limited to the DCS

Acknowledgements and References

- Advisor: Daniel M Pajerowski
- NCNR SHIP Coordinators: Julie Borchers, Yamali Hernandez
- CHRNS: Center for High Resolution Neutron Scattering



pointcloudlibrary

OpenIN

OPENINNECT

DiegoInventoryCE:

<http://sourceforge.net/projects/diegoinventory/>