**Project Report**

**Projects**

***Smart Insulating Container with Anti-Theft Features by M2M Tracking***  **2014**

* ***Contribution***:
  + Design a lightweight algorithm of detection about status of container on RTOS embedded platform.
  + Develop an iOS client-side logistic app.(Logistics flow, Bluetooth 4.0 Communication mechanism )
* ***Technology skills***: iOS, embedded C, algorithm.
* ***Paper***: <http://www.ece.uci.edu/~chou/pdf/chou-ithings14container2.pdf>
* ***Description***:

a smart insulating shipping container with anti-theft features based on M2M communication for mutual tracking. The container includes a wireless sensor  
node for sensing the temperature and moisture of the interior of the container as well as the vibration and orientation to ensure integrity of the contents.

***Touch projector***  **2012**

* ***Contribution***: Design a vision algorithm of multiple fingertips detection.
* ***Technology skills***: Vision algorithm, OpenCV, Visual C++, .NET framework.
* ***Youtube***: <https://www.youtube.com/watch?v=nt4eUAXqXyk>
* ***Description***:

Touch projector enables the projection to be touchable.

***Book Finder* (**Indoor location service of library**) 2012**

* ***Contribution***:
  + Design an AR feature, (without third party library )
  + UI and MVC implementation
* ***Technology skills***: **Android, Java**
* ***Youtube***: <https://www.youtube.com/watch?v=BvLKtrgq_yw>
* ***Description***:

UsingIndoor location system,and Augmented Realitytechnology, Book Finder app guides users to where book is located.

**Personal Pet Projects**

***EcoSim: A Smartphone-Based Sensor-Node Simulator with Native Sensor and Protocol-Stack Emulation* 2015**

* ***Technology skills***: **iOS, Object-C**
* ***Youtube*:** <https://www.youtube.com/watch?v=1UUcqf0pjM0>
* ***Pape***r: <http://140.113.39.130/cgi-bin/gs32/hugsweb.cgi?o=dnthucdr&s=%22GH02102062590%22.id.&>
* ***Description***:

The contribution of this work is a new kind of development tool support for an IoT platform. It enables developers to write code, compile using an open-source compiler, and execute it on a conventional smartphones to emulate not only the MCU but also peripheral devices. It does not require developers to actually buy and run the code on the actual embedded systems, which may be realistic but can also be more difficult due to low-level problems such as hardware errors.

***Gesture recognition with IoT platform based on triaxial acceleration* 2015**

* ***Technology skills***:machine learning, python, embedded C
* ***Youtube***: <https://www.youtube.com/watch?v=VInyJABrmPo>
* ***Description***:

Gesture recognition by machine learning, computer can recognize the gesture by holding the small IoT platform.

**Voice Recognition and Correction(ED algorithm) 2017**

* ***Technology skills***: Voice Recognition,edit distance Algorithm
* ***Youtube***: <https://www.youtube.com/watch?v=xZo-bpWrYlk>
* ***Description***:

Use ED distance algorithm to enhance voice recognition and fetch out the important information.

**Machine learning (OCR) (hack CAPTCHA) 2016**

* ***Technology skills***: Machine learning,Vision algorithm
* ***Youtube***: [**https://www.youtube.com/watch?v=9ovWzIu1zy8**](https://www.youtube.com/watch?v=9ovWzIu1zy8)
* ***Description***:

Using RNN to hack CAPTCHA.

***Make Desktop touchable with the cheap webcam* 2013**

* ***Technology skills***: Vision algorithm, OpenCv, .NET framework
* ***Youtube***: <https://www.youtube.com/watch?v=oRpuemI3SzA>
* ***Description***:

Gesture recognition by computer vision algorithm, user can control the computer with cheap webcam, no need expensive hardware.

**Self-propelled Car 2014**

* ***Technology skills***: Vision algorithm, automation control theory, embedded platform
* ***Youtube***:<https://www.youtube.com/watch?v=WJ1_3XRyf2k>
* ***Description***:

Self-propelled car with automation control PID algorithm.

**Award**

Won "**Qualcomm award"** in 2012 Mobileheroes by "*Book Finder*” in 2012

Won “**international ICT innovative services contest excellent work**” by “*Touch projector* ” in 2012