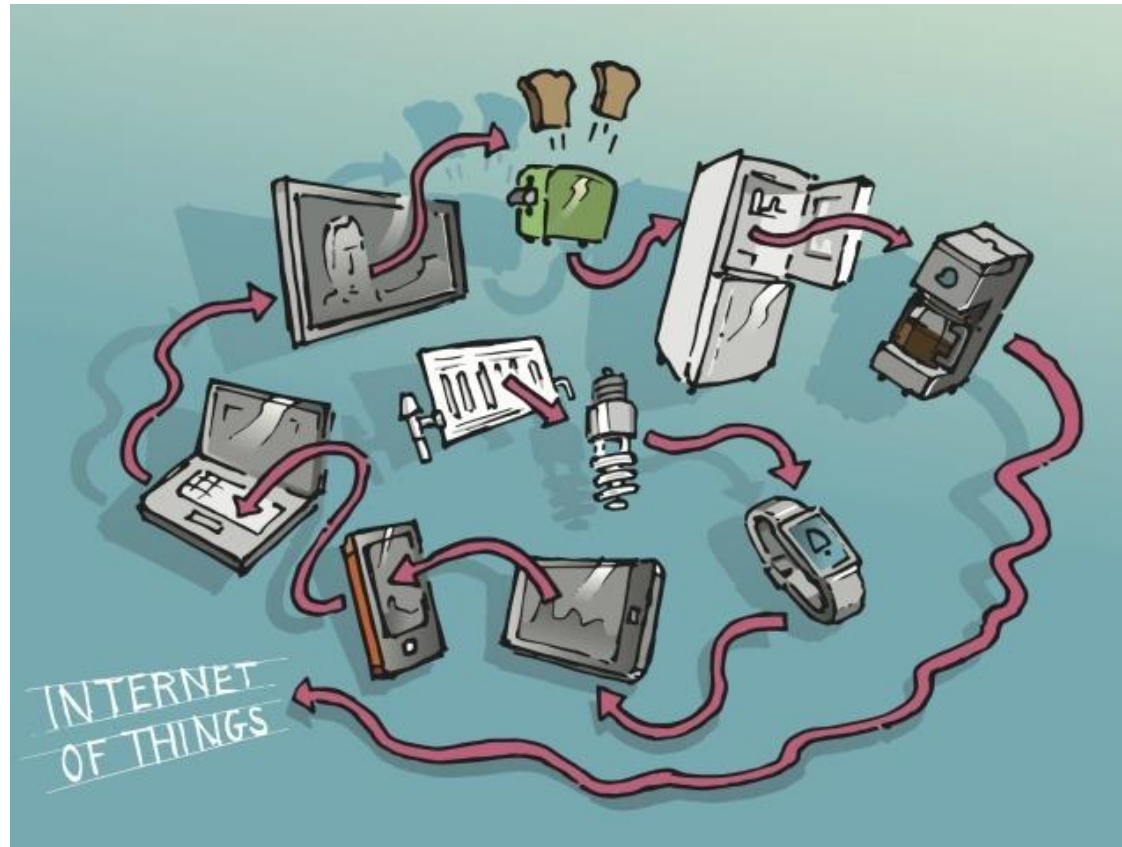


**NAVIGATING THE ECOSYSTEM FOR IOT
USE AND MONETIZATION: A YOUTH
PERSPECTIVE**

**Christian
Barran**

INTERNET OF THINGS





Cloud

EXAMPLE OF IOT— POT HOLE DETECTOR

Brain



Instructions



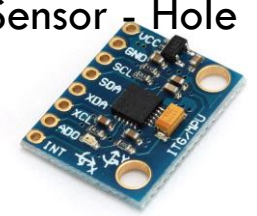
Sensor - Location



Cloud Gateway



Sensor - Hole



Problem – Pot hole



Is this a Profitable Venture?

MY TEAM



Varoun Hanooman

Computer Systems
Projects and Marketing



Christian Barran

Electronics and Computer Systems
Operations and Procurement



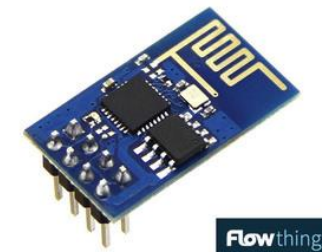
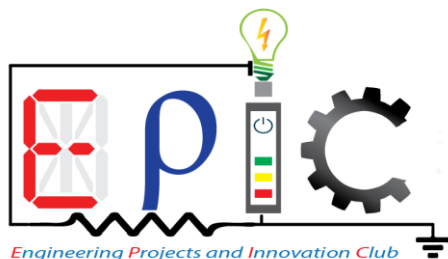
Nicholas Hosein

Controls and Computer Systems
Legal and Finance

WHY DID WE START?

Passion for Electrical and Computer Engineering

- Specialised in Electronics and Computer systems
- Products that can bring in foreign exchange – BIG DATA?
- Increasing number of new IOT development platforms



Internet of Things – Sector Landscape

SNAPSHOT

Founded year



Wearable Devices

Logos for Wearable Devices: JAWBONE, fitbit, recon INSTRUMENTS, Withings, pebble, wahoo FITNESS, signal, LUMO Rack, nymi, BASIS, GLASS, HEXOSKIN™, cookoo, MEMOTO, THALMICLABS

Home Automation and Security

Logos for Home Automation and Security: ALARM.COM™, Lockitron, dropcam, SUPERMECHANICAL, tile, knut, revolv, canary, SmartThings

Energy Efficiency

Logos for Energy Efficiency: alertme, ecobee, nest, tado°

Platforms and Connectivity

Logos for Platforms and Connectivity: sensinode, ioBridge™ CONNECT, ThingWorx, sense, zonoff, xively™ by LogMeIn, BERG CLOUD, electric imp, Ayla Networks, NINJABLOCKS

Traditional Product Development Process



REALITY

Founding a Startup



What the majority thinks:
LINEAR PROCESS



What it is really like:
ITERATIVE JOURNEY

BUSINESS OPPORTUNITIES — WATER LEVEL SENSOR

First real IOT Project: Water Level Sensor

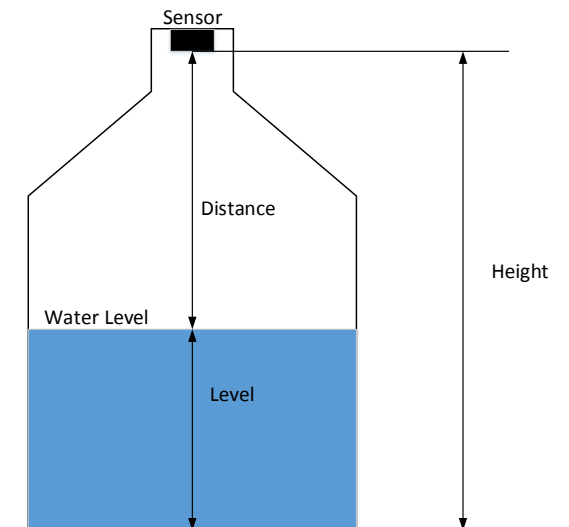
By the Engineering Project and Innovation Club (EPIC)



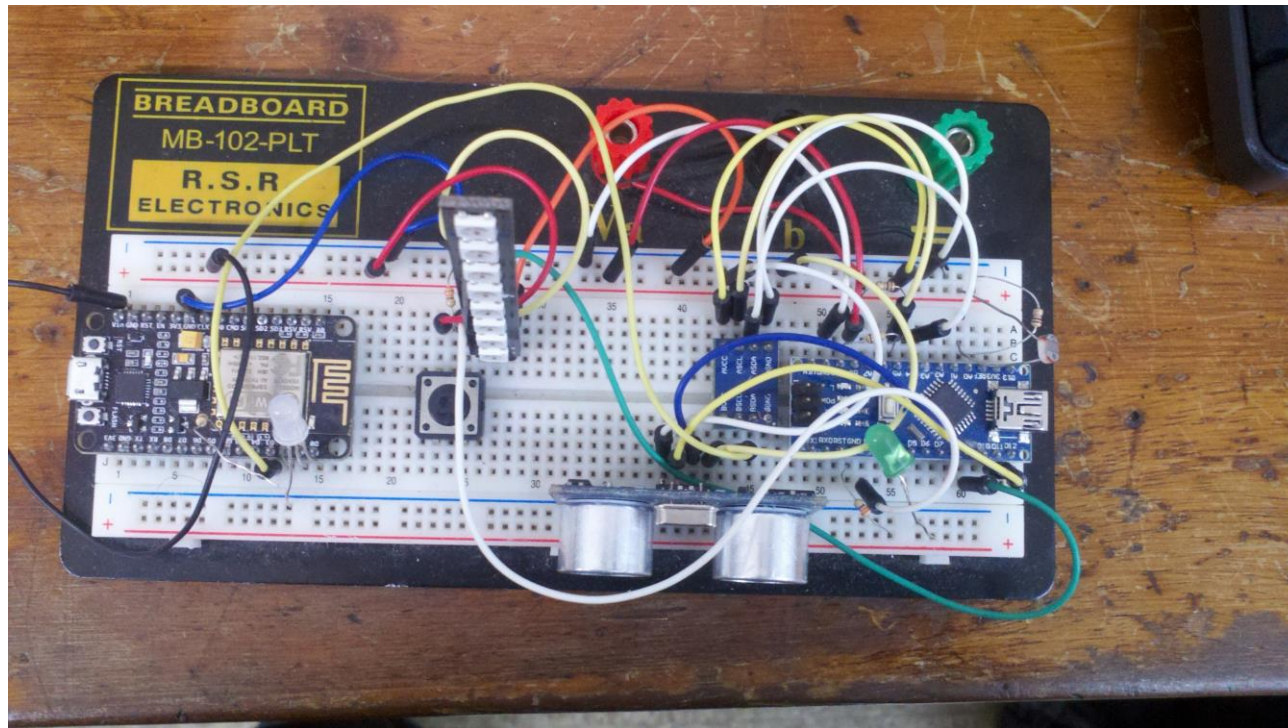
Saw a problem

Prototyping

Approached Vendors



WATER LEVEL SENSOR



← → ↻ 🏠 192.168.4.1

📱 Apps 📧 Mail - Christian Barrar 📞 WhatsApp 🔗 Coursera

Water Level Sensor ®

Step one:

Insert tank dimensions:

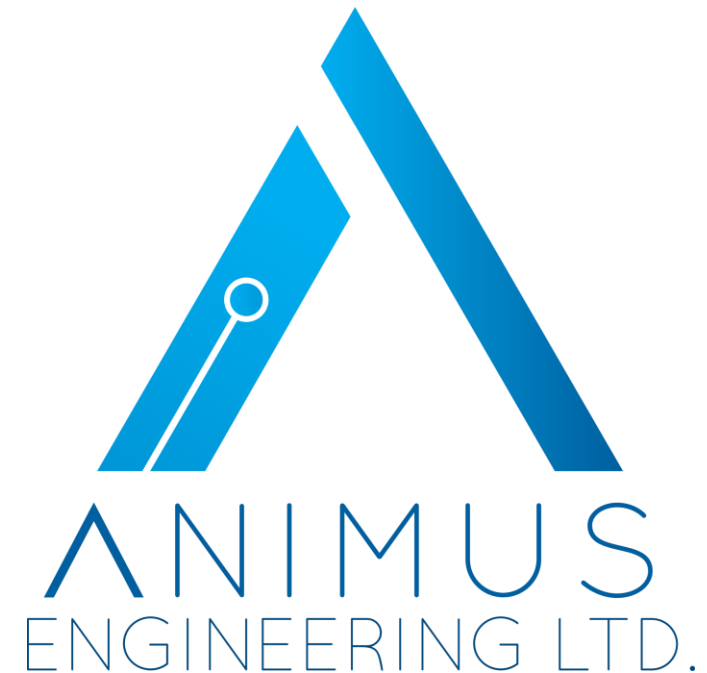
Height (meters) : m

Diameter(meters) : m

BUSINESS OPPORTUNITIES – ANIMUS

Animus Engineering LTD – JUNE 2016

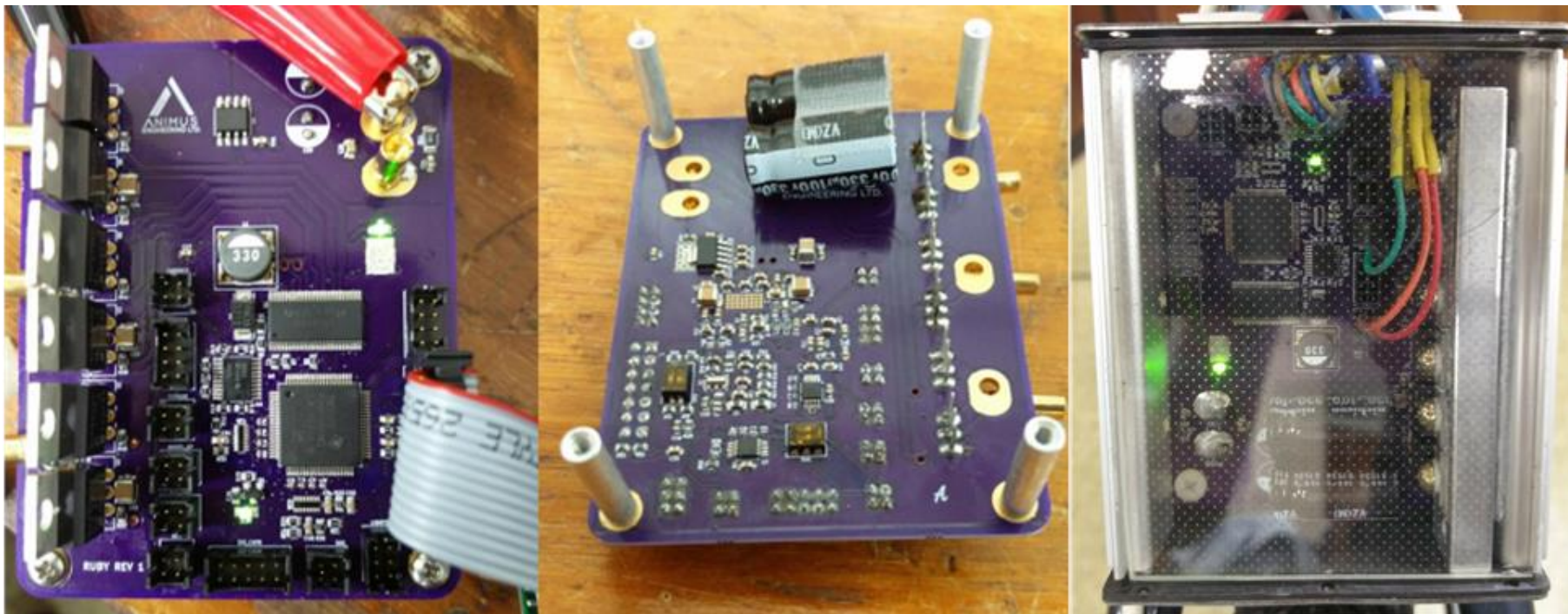
- Ebike
- Website development
- Custom Engineering solutions



BUSINESS OPPORTUNITIES — ANIMUS EBIKE



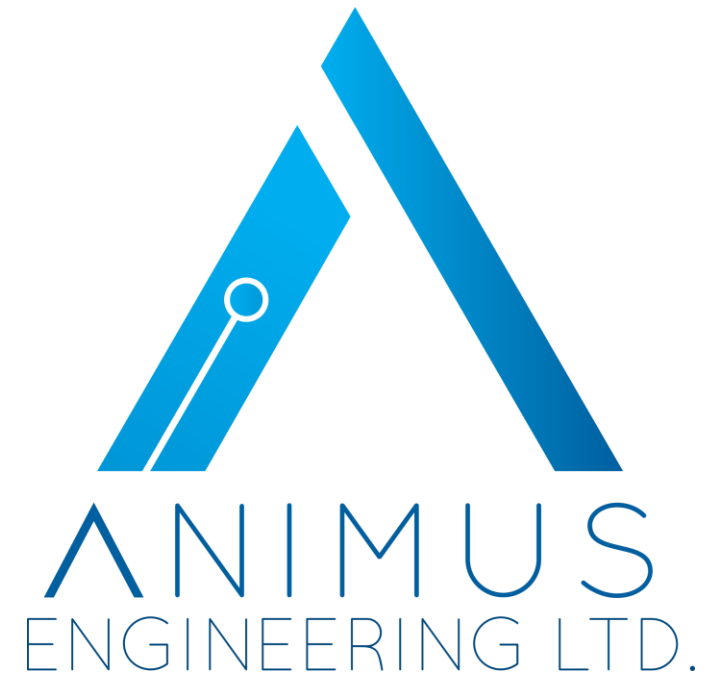
BUSINESS OPPORTUNITIES — ANIMUS EBIKE



BUSINESS OPPORTUNITIES – ANIMUS

Second IOT Project – Unipet loyalty Card

- Partnership with WiPay
- Cashless payment at pump
- Networking



BUSINESS OPPORTUNITIES — ANIMUS AND WIPAY

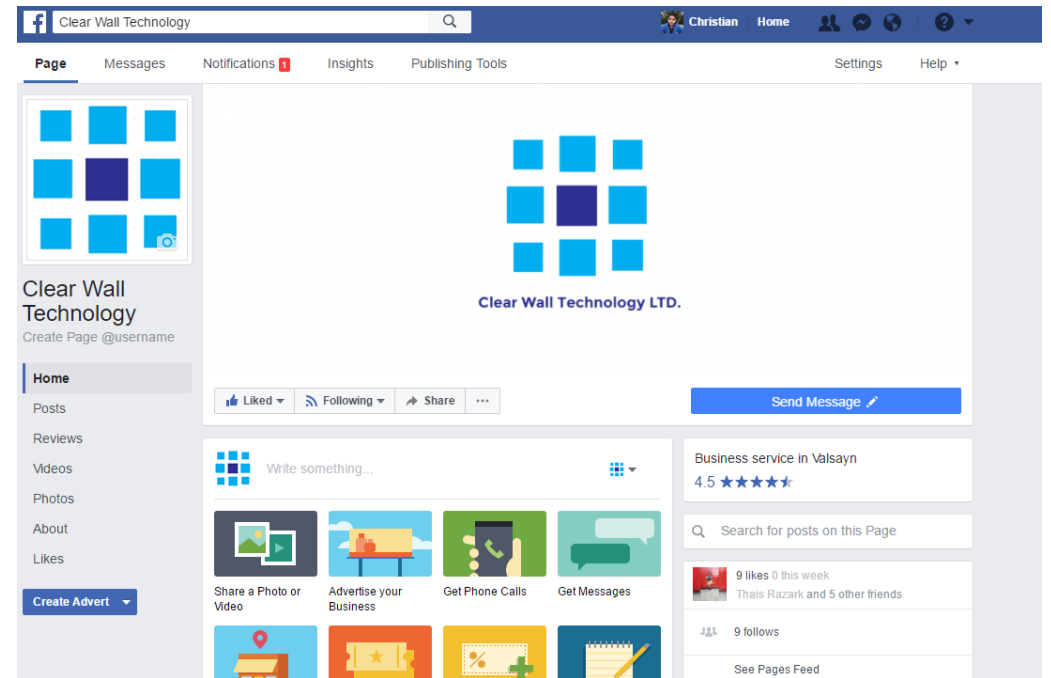


BUSINESS OPPORTUNITIES — CLEAR WALL

September 2016

- No Funding for Animus

!! SOLUTION — Clear Wall Technology LTD



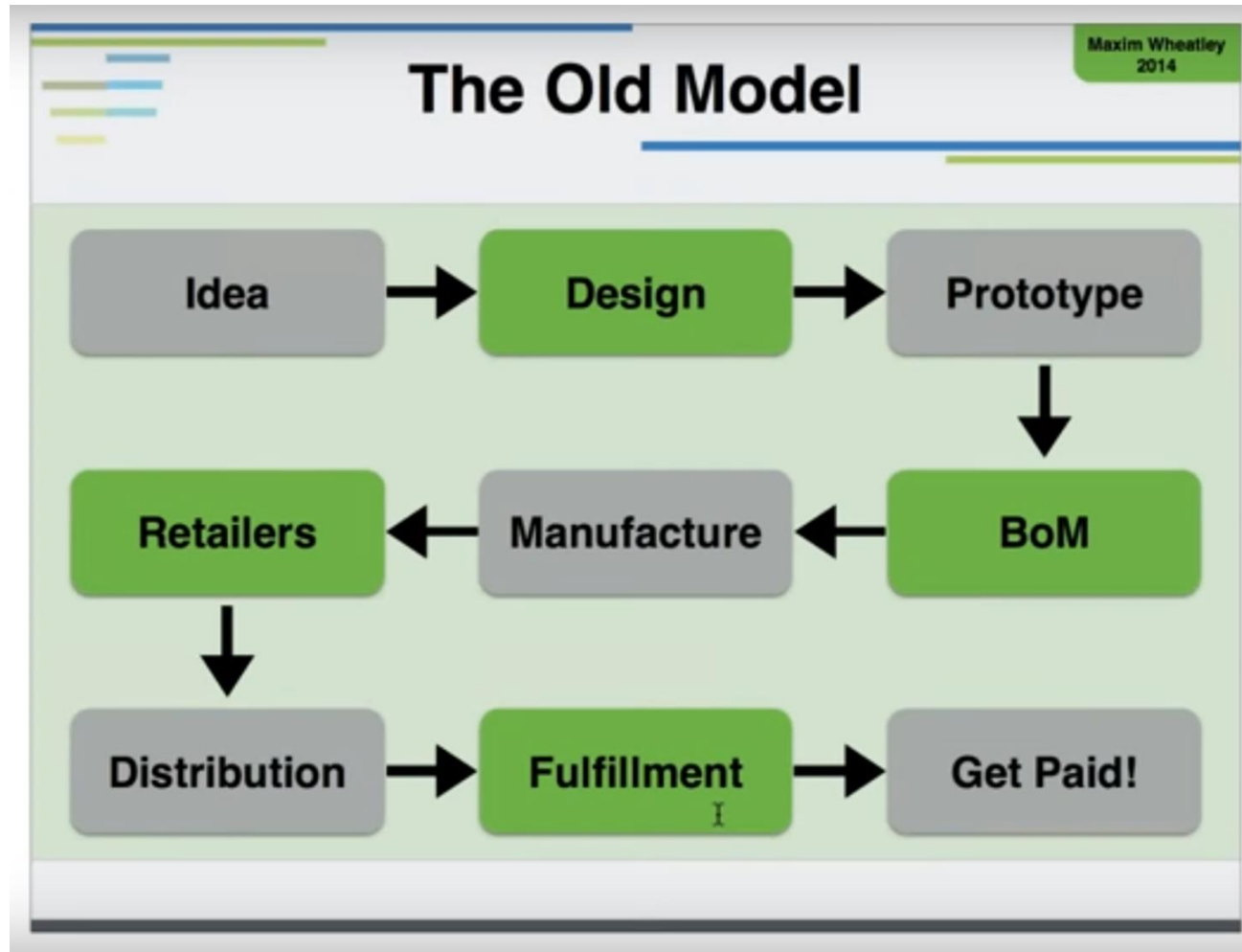
AVENUES WE TOOK

*Networking is Key

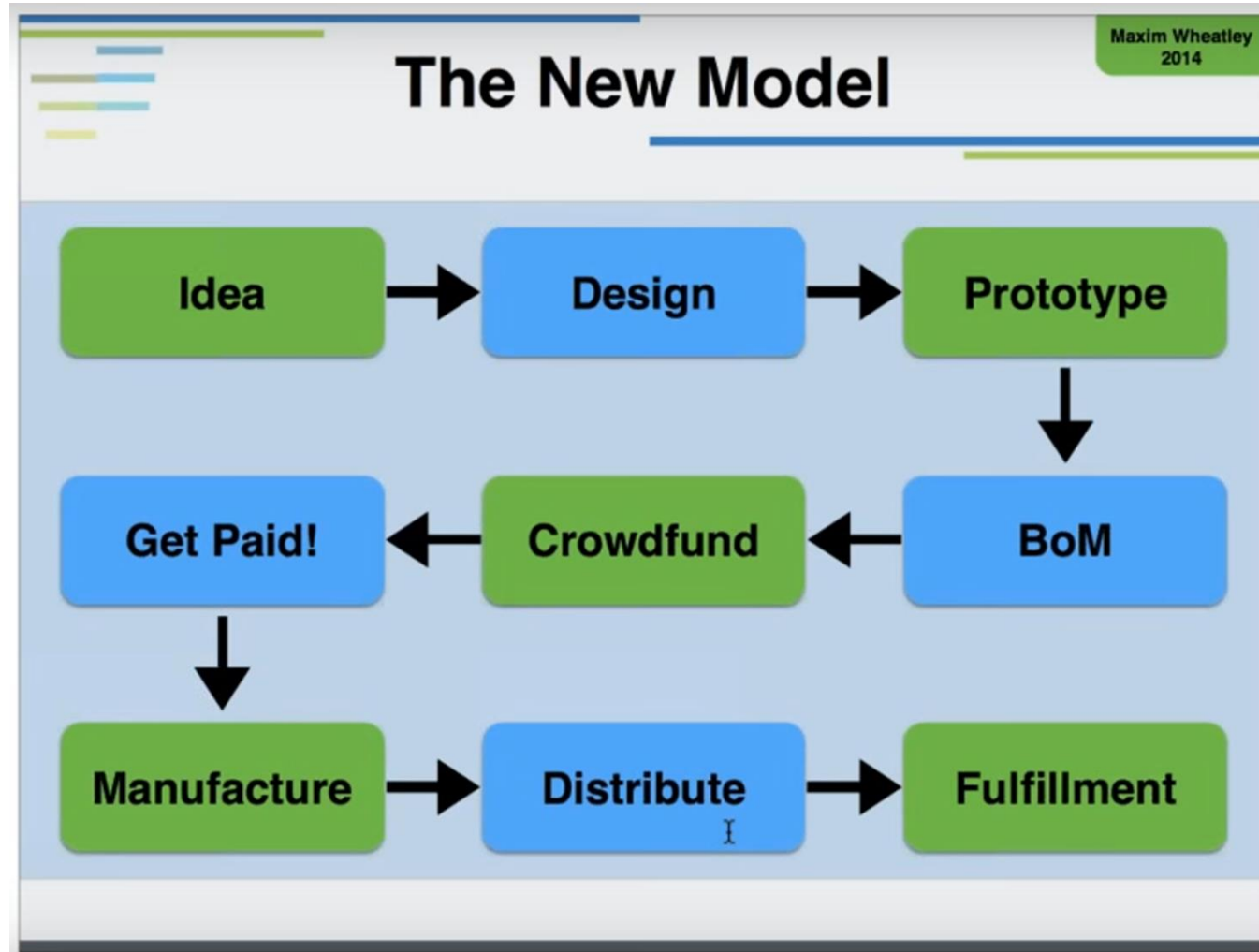
- The University of the West Indies
- Economic Development and Advisory Board – Still in Communications
- Export TT
- The Caribbean Industrial Research Institute (CARIRI) – Still in Communications
- MIC Institute of Technology
- Talking to Potential Customers
- Talking to experienced persons – Still in Communications



OTHER OPPORTUNITIES – MELON



OTHER OPPORTUNITIES – LASER TAG



TECHNICAL CONSIDERATION

DEVELOPMENT PLATFORM – architecture , language , tools



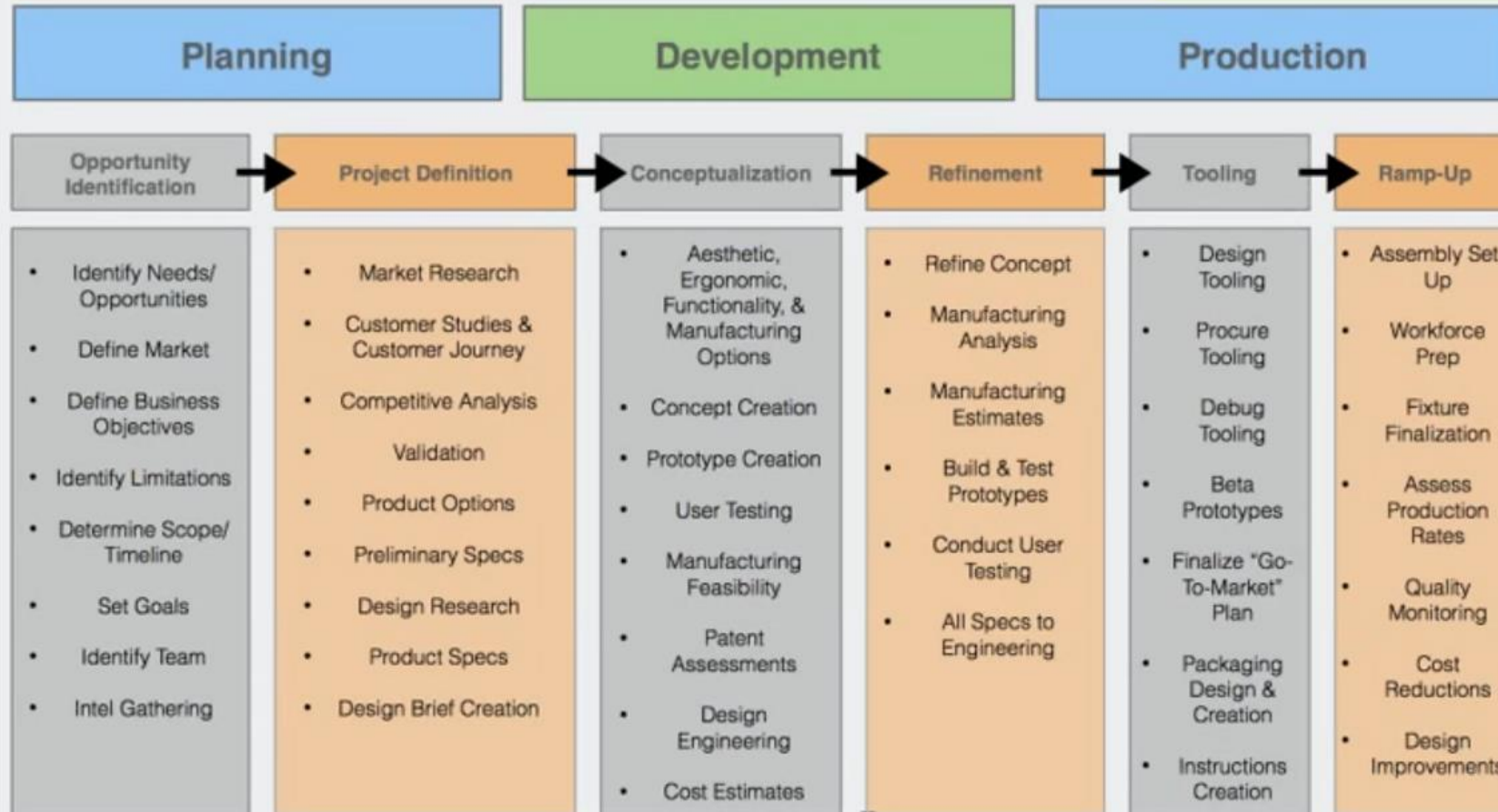
COST – hardware , servers, internet , testing, manufacturing



HARDWARE AND SOFTWARE REQUIREMENTS – memory, battery life, power, distance

TIME – to market, development , testing , manufacturing

The Process



Sources: "The Industrial Design Reference + Specification Book", Phil Baker, Blue Ox Industrials, Whiteboard Product Solutions

STUMBLING BLOCKS AND OBSTACLES

Internal:

Conflicting Ideas

Expectations

Work delegation

External:

Communication Skills

Committed Communication

Customer expectations

Making Proposals that Sell

Manufacturing



STUMBLING BLOCKS AND OBSTACLES

Internal:

Conflicting Ideas – **Communication**

Expectations – **Understanding**

Work delegation – **Project management Tools**

External:

Communication Skills - **Practice and read books**

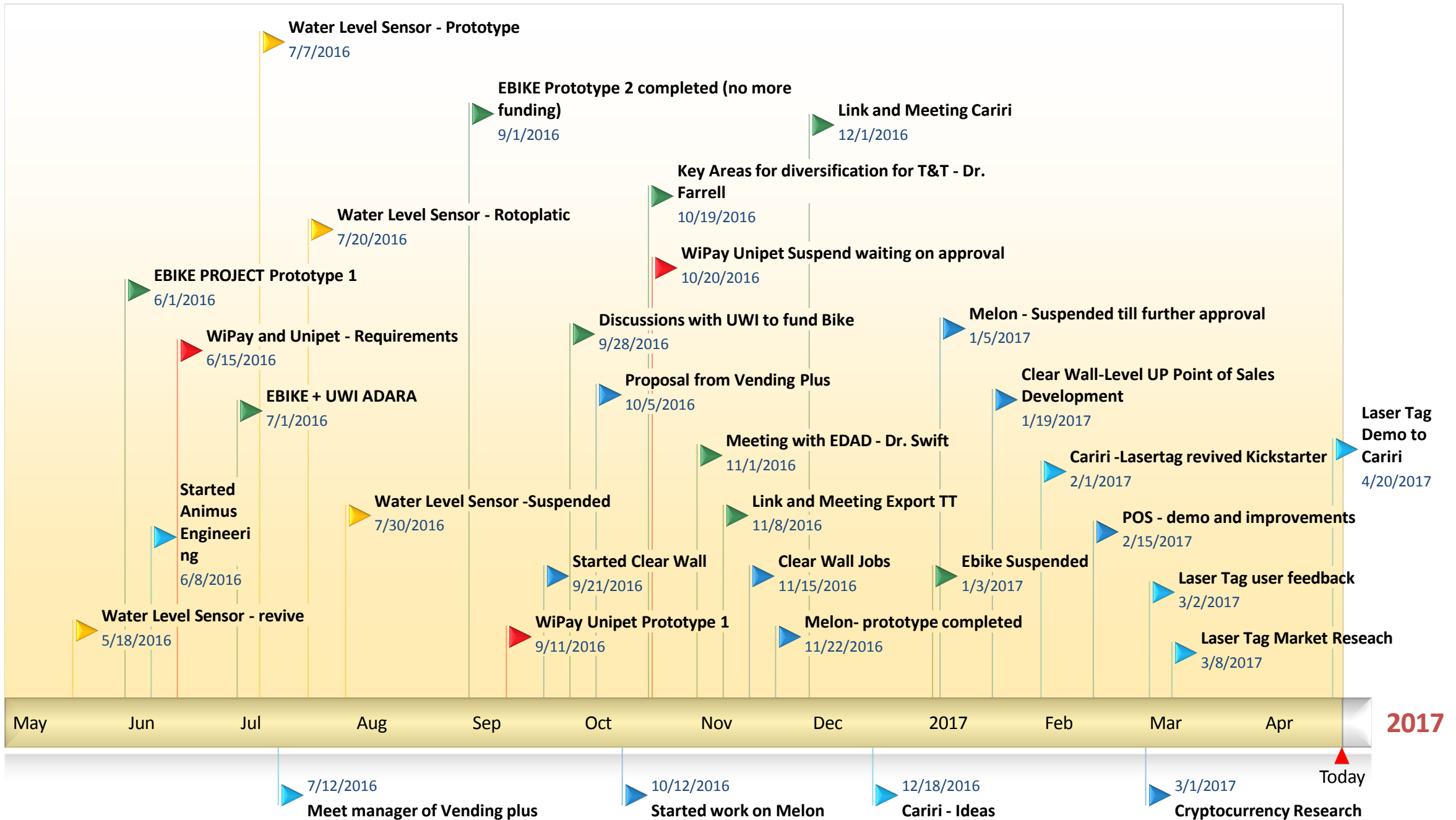
Committed Communication – **Following Up**

Customer expectations - **Be clear**

Making Proposals that Sell – **Sending them to Experienced persons before hand**

Manufacturing – **Cariri and Learning the Chinese manufacturing process**





NEXT STEPS

Laser tag – Working with Cariri

- Kickstarter

- Licencing Agreement

Clear Wall Point of sales

Cryptocurrency

Mentorship and Advice –

Vijay Pradeep, Malcom Marquez, Dr. Kieron Swift, Jeevan Persad ,Laura DaBreau, Dr. Ronald DeFour

More Networking – Like today!!



INFORMATION LINKS

YouTube: The Hardware Start-up: From Prototype to Production

<https://strategyzer.com/>

Business Canvases and Tools

Books:

Crucial Conversations – Patterson, Grenny, McMillian, Switzler

Mavericks at Work – Williams C. Taylor & Polly LaBarre

Good To Great – Jim Collins

The 7 Habits of High Effective People- Stephen R. Covey

Business Planning – David Butler