

Manufacturing in China, what the hell!

“The problem is we don't understand the problem“

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About me

Embedded Linux Engineer

- Bookeen (eReaders)
- Archos (Android Tablets, set-top box, home automation)
- Mindscape (Karotz)

18 consumer electronics products since 2009

Misc

- Blog: www.yoannsculo.fr
- Twitter: @yoannsculo
- Freenode: ysculo

Introduction

What

- Problems I face everyday with production in China.
- Particularities of my job from a developer point of view.

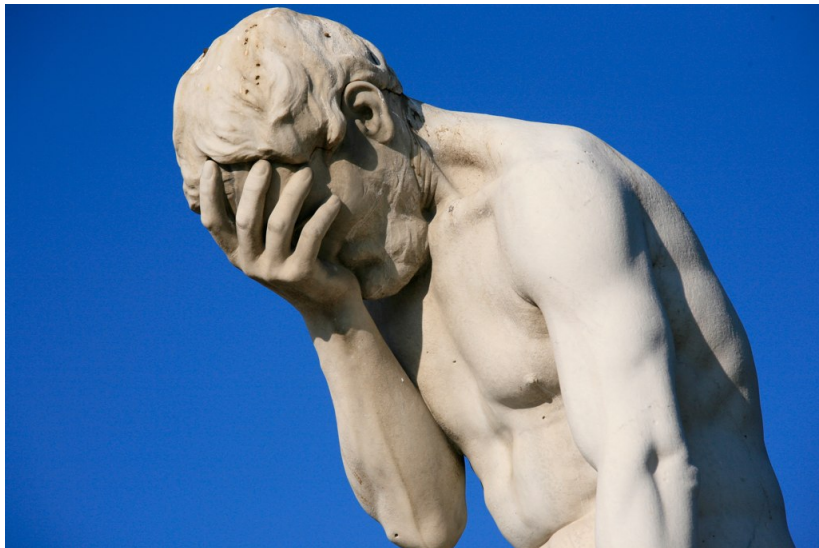
Experience feedback

- My own experience, sometimes from my colleagues.

Important Notice

- Please note this is what I experienced the last 4 years in France as a developer.
- It won't reflect the whole market. But you'll get a glimpse.

Me, pretty often!



Language, culture and usages

Cultural difference is strong

- emails, confcalls and source code
- Documentation in chinese
- Names: Peter, Steven, Ken, Peter Pan, Bruce Lee, ...
- They don't say no and don't get angry
- Hard to find spirit of initiative

Implicit: what?

- They don't feel the implicit in your sentences/demands.
- Screwdriver example

Language and usages

What to do?

- You need to be very concise, clear and intelligible
- Don't send huge emails and make very short sentences.
- Forget bottom-posting in emails.
- Be patient.

Everything is Microsoft

Windows culture. . .

- Production and flashing tools
- Viruses
- .rar archives (no diffs)
- Allwinner loader architecture
- They use Skype (or WeChat)



Everything is Microsoft

What to do?

- You need a VM, Wine or a dedicated Windows computer
- Favor portable languages/frameworks such as Python, QT
- Be carefull with viruses

Source code quality

Help us all

- no Git, SVN, CVS, not even cpold - developer source tree
- no UNIX culture, no patches, DOS file format
- comments in Chinese, bad encoding

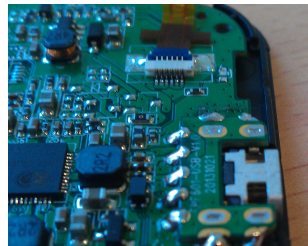
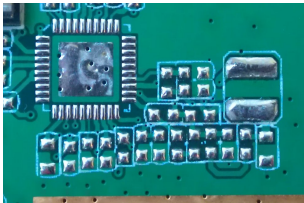
Kernel mess

- Awful drivers (bash/cp, while(1))
- blobs everywhere, .doc versioned into the kernel

Electronics quality

Important cultural/educations issues

- Funky lowcost PCBs
- upside down connectors
- Electrical wire color coding - What for?
- Map every pins - What for?
- Properly set up your soldering machine? What for?



Electronics quality

What to do?

- Use a production testing tool.
- And check, during the production, that everything is OK on your hardware.

Distance

Time zones

- Currently +7 hours
- Discussion channel is over at 1:00 PM
- You can waste your day

Crappy Internet connection

- Internet can be sloooooooooooooow
- Remember 56k! Imagine sending 4GB data.
- Internet connection on the production lines is rare.

Distance

What to do?

- Communicate on the morning, work on the afternoon
- Always think about the end of the day in China.
- Plan ahead firmware uploads.
- Think offline as much as possible for the production line.

Production operators are not likely to be educated

Important cultural/educations issues

- Many don't speak English
- Some examples ...



Production operators are not likely to be educated

What to do?

- Keep in mind they don't all speak English.
- Use chinese (or colors or shapes)
- Guide them with simple tasks and documentation.
- Ease their work and automate everything as much as possible.

Rush periods

European & American periods

- Christmas - In the stores in november
- CES (january), IFA (september)
- Summer holidays? Nope!

Asian periods

- Golden weeks (Spring Festival, Qingming, May Day, Dragon Boat, Mid-Autumn Day, National Day)
- Worst for us is National Day

Rush periods

What to do?

- Forget quiet and peaceful summers and be prepared.
- Work in pair at least (not like me), if you want holidays!
- Take your holidays between february and april. Ugh!
- Ship before Golden Week. Don't get stuck in customs!

The bill of materials (BOM) and PCB layout will change

Changes in the BOM

- Small money savings (cents) are a big deal for big quantities.
- Sometimes you are running out of specific components.
- Your BOM **will** change.
- Need to change/pick up new drivers.

Changes in your PCB layout

- To fix hardware bugs, your PCB will change.
- Many revisions to handle in 1, 2 or 3 years at best.

The bill of materials (BOM) and PCB layout will change

What to do?

- You **must** expect and anticipate components changes.
- Think modular and maintainable code from the start.
- Anticipate many PCB revisions in your whole system.
- Prepare yourself to port many drivers.

And despite that!

Not easy

- Stressful, frustrating
- Hard to communicate and understand each other

But

- Component sourcing is easier locally.
- High flexibility to produce there.
- Everything, the whole market is over there.
- They are very good at what they do.
- Almost no factory in France anymore.

Last quote

- “The problem is we don't understand the problem”

Credits

- Paris_Tuilleries_Garden_Facepalm_statue.jpg
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