IT Project Course 2016

Introductory lecture

Calendar, Summary

- 2 meetings on separate days, 4-8 April
- 1/2 book read + Definition of done, 11 April
- Whole book read, preparation done, 14 April
- Lecture 18 April 9-10, room 208 (obligatory)
- Project work, 19 April - 19 May (obligatory)
- Project Expo, 20 May (obligatory)
- Product Documentation, 20 May
- Individual Project Reflection, 26 May 2016

Calendar, up to Project Work

- 2 meetings on separate days, 4-8 April
  - project discussion or brainstorming
- 1/2 book read + Definition of done, 11 April
- All preparation done, 14 April
  - whole book read
  - git repository set up
  - product backlog ready
  - project web page up

Calendar Summary, Project Work

- 18 April 9:15-10:00 - Lecture (obligatory)
- 18 April - Sprint Planning meetings
- Project work, 19 April - 19 May (obligatory)
- Working hours, 8-17 with 1 hour lunch break
- Project Expo, 20 April (obligatory)
- Product Documentation, 20 May
- Individual Project Reflection, 26 May 2016

Calendar, Project Work

- Sprint 1: Tuesday 19 April - Monday 25 April
- Sprint 2: Tuesday 26 April - Monday 2 May
- Sprint 3: Tuesday 3 May - Wednesday 11 May
- Sprint 4: Thursday 12 May - Thursday 19 May (except Tuesday 17 May)
- Project Expo: Friday, 20 May
- Documentation ready: Friday, 20 May

Working Hours, April

- Monday, 8:00-12:00 and 13:00–17:00
- Tuesday, 8:00-12:00 and 13:00–**18:00**
- Wednesday, 8:00-12:00 and 13:00–17:00
- Thursday, 8:00-12:00 and 13:00–**16:00**
  - Methodology course lecture starts at 16:15
- Friday, 8:00-12:00 and 13:00–17:00

Working Hours, May

- Monday, 8:00-12:00 and 13:00–17:00
- Tuesday, 8:00-12:00 and 13:00–**18:00**
- Wednesday, 8:00-12:00 and 13:00–**16:00**
  - Methodology course lecture starts at 16:15
- Thursday, 8:00-12:00 and 13:00–17:00
- Friday, 8:00-12:00 and 13:00–17:00

Project Expo, Friday, 20 May 2016

- Day before: Fully charge all batteries
- 08:00 – 09:30, Final tests and adjustments
- 09:30 – 11:00 Setup table, poster, demo space
- 11:00 – 13:00 Project Expo
- 13:00 – 14:00 Cleaning up after expo
- 14:00 – 16:00 Cleaning up rooms
  - noone leaves until room is approved by me

Product Documentation to be ready on Friday, 20 May

- Robot Projects: Service Manual + blueprints
  - Service Manual must be PDF
  - Blueprints must be JPGs
- Software Proj's: User Manual + Tech Report
  - Both must be PDFs
- Upload to project website
- E-mail me list of **links to each file**

Var

- 302 (Rider), 303 (Seeker), 304 (Trucker)
- Tejpa blåplast på väggarna som taskboard
  - tejpa user-stories med tjock tejp (lätt att ta bort)
  - tejpa aldrig direkt på väggen
- Flytta borden om ni vill
- Tidsskrivning veckovis, **på papper**

Tidsredovisning

Vecka 1		Adam	Bertil	Cesar	David	Erik	Filip
Måndag	Kom	08:10	08:05	07:45	07:50	07.58	07:
24 april	Lunch	12	12	12	12	12	12
	Åter	13	12.50	12.50	12.50	12.30	13
	Gick	16.30	17.00	17.00	17.00	17.00	17
	Diff	-40	+0:05	+0:10	+0:20	+:12	+0:
Tisdag	Kom	8	07:55	8	8	8	
25 april	Lunch	12:20	12:20	12:20	12:20	12.20	12
	Åter	13:10	13:10	12:55	12:55	12:55	13:
	Gick	17:00	17:00	17:20	17:10	17 10	17
	Diff	+:10	+0:35	+:45	+:35	+:35	+

Time reports

- One A4 per team, per sprint
- I've made a form for you to use
- Tape it by the door of the project room
- Write when you come, go to lunch, go home
- Add the total hours after each sprint
- After a sprint: start a new A4, hand in the old

Hand-ins

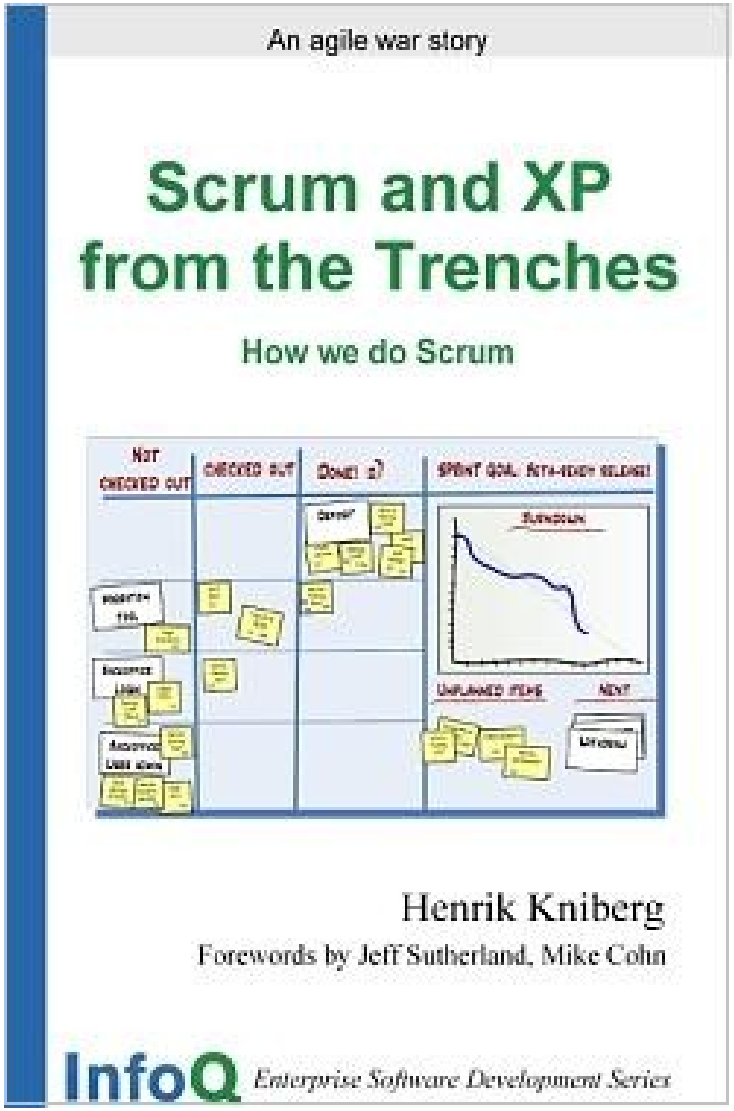
- Preparatory tasks, 11 April and 14 April
- Time report, after each sprint
- Robot (robot teams only), 20 May
- Borrowed stuff, 20 May
- Product Documentation, 20 May
- Individual Project Reflection, 26 May

Publishing

- **Fill in the form on publishing, so I know what KTH can publish**

Course book

- Henrik Kniberg: Scrum and XP from the Trenches
- Zero-cost download, www.infoq.com (search for Kniberg)
- Easy to read, enjoyable, indispensable!



Scrum Master

- Makes sure daily scrum starts/ends on time
- Makes sure the backlog is updated
- Makes sure any problems get sorted
- Talks to visitors (so rest of team can work)
- Organizes the sprint demo
- Organizes the sprint retrospective
- **Coach the team to do all this without you**

Scrum Master

- Utses av kursledningen
- Ser till att alla har arbetsuppgifter
  - Leder ståuppmötet på morgonen
  - "How we do daily scrums" i Knibergs bok
- Tar hand om besökare
  - svarar på frågor, andra kan fortsätta jobba

Master of Accounts (robot projects only)

- Selected by team
- Team may buy material for up to SEK 2000
- Spend your own money, keep the receipts
- F Lundevall gets money after course
- F Lundevall transfers money to the team's Master of Accounts

Receipts
(robot projects only)

- M of A tapes each receipt onto an A4,
- writes an item-number on that A4,
- writes down VAT and stuff in spreadsheet
- If you pay 43:87 by card, you pay 43:87 and you will get 43:87
- If you pay 43:87 in cash, you pay 44:00 and you will get 44:00
- Never do rounding that the store didn't do

After Project (robot projects only)

- Master of Accounts e-mails spreadsheet to F Lundevall
- Master of Accounts and F Lundevall meet
- Receipts are counted, checked, scanned
- A month later, F Lundevall gets money
- F Lundevall sends money to Master of Accounts in each team

Protect yourself!

- **Use protective glasses**
- When operating machinery such as drills
- All persons in the room must wear protection
- New protective glasses cost SEK 49,
  but a new eye can't be had for any money

Protect yourself!

- **Use ear muffs**
- When doing loud stuff such as drilling
- All persons in the room must wear protection
- New ear muffs cost SEK 49,
  but a new ear can't be had for any money

Protect your room

- Protect walls with plastic
  - use blue-tape on the wall
  - standard tape peels the paint off
- Protect furniture with cork (robot projects)
  - drilling or sawing must not damage furniture
- Protect your stuff
  - take home stuff that is or looks expensive
  - pack small things, our cleaners are thorough

Don't bring your own robot stuff

- If it's dirt cheap, give it away to your project
  - an LED, or some cables, max SEK 50
- If it's not, talk to F Lundevall
  - lending stuff to the project is not good
  - there is no insurance
  - the robot is incomplete afterwards
- You can't buy stuff from KTH

Sprint planning priorities

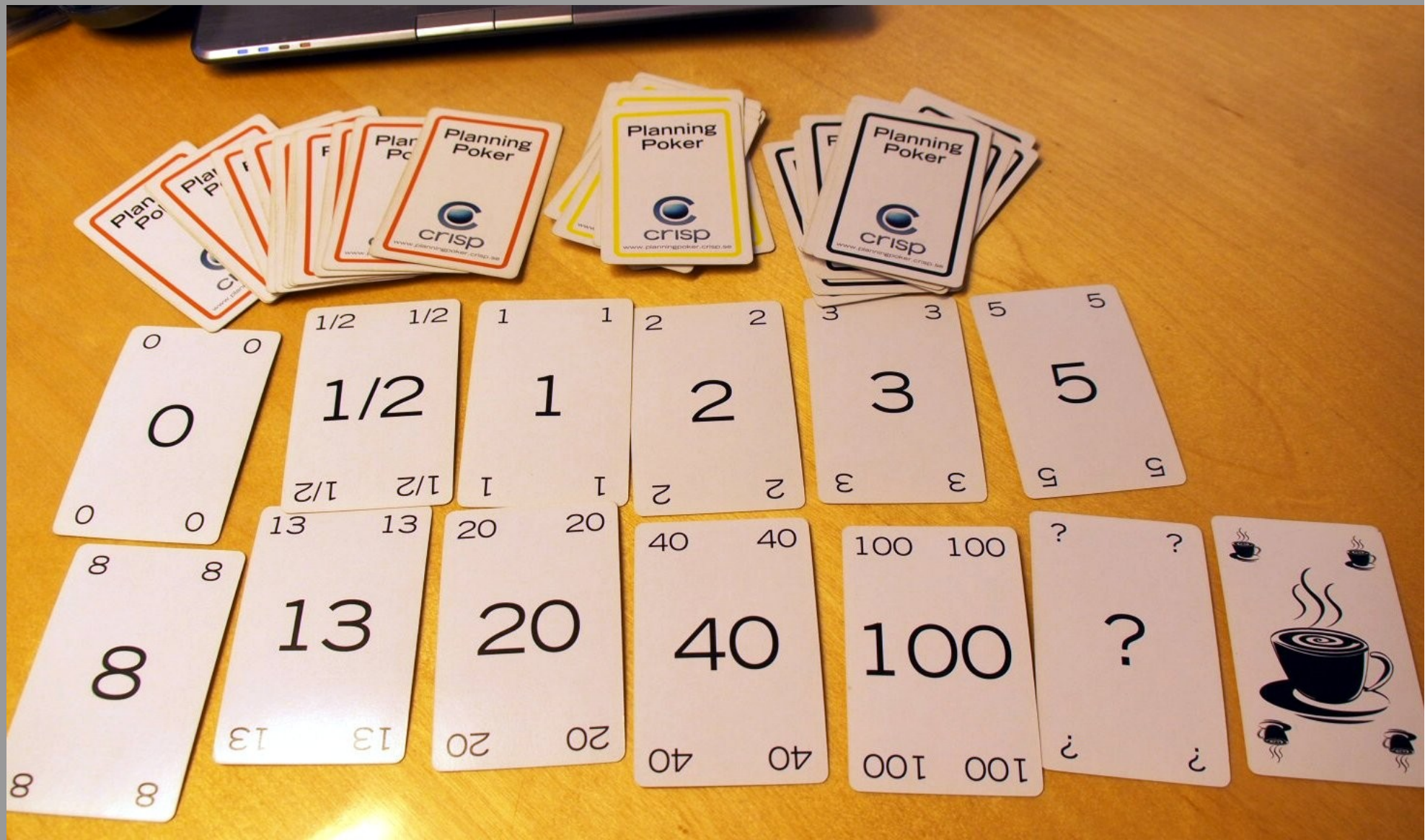
- Sprint goal and demo date
- List of stories accepted by team, for sprint
- *Estimate* filled in for each story in sprint
- *How to demo* filled in for each story in sprint
- Velocity/resources checked for sprint
- Time and place for daily scrum specified
- Stories broken down into tasks

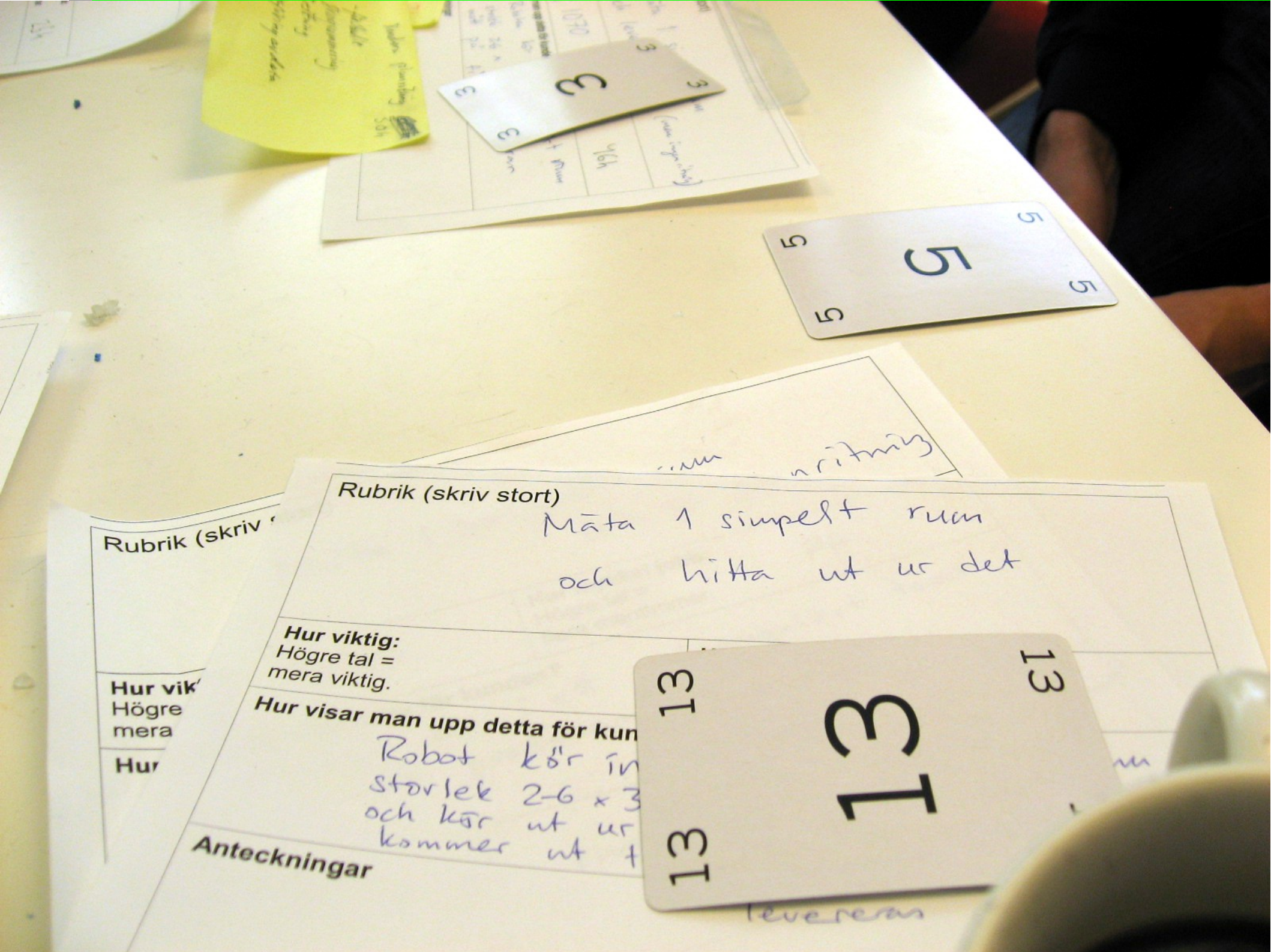
Iterationsplaneringsmöte (sprint planning)

- Mål för sprinten samt demo-datum
- Lista på user-stories som ingår i sprinten
- Tidsuppskattning för varje story i sprinten
- "Hur visar man upp detta för kunden" ifyllt för varje story i sprinten
- Hastighets- och resursberäkning för sprinten
- Tid och plats bestämd för ståuppmöte
- Varje story uppdelad i engineering-tasks

Planning Poker

Deck of cards for Planning Poker




Rubrik (skriv stort)
Mäta 1 simpelt rum
och hitta ut ur det
Hur viktig:
Högre tal =
mera viktig.
Hur visar man upp detta för kun
Robot kör in
storlek 2-6 x 3
och kör ut ur
kommer ut
Anteckningar
13
5

Daily Scrum

- What's the best “today” we can have?
- All team-members stand up, for each person
  - what did I do yesterday to meet sprint goal?
  - what will I do today to meet sprint goal?
  - what could stop us from meeting sprint goal?
- Write on whiteboard for each person
- Team checks that taskboard is up-to-date

Robot Software

- Keep It Simple, Sweetheart (KISS)
- Use periodical timer interrupts,
  don't use other interrupts
- Event-loop:
  if a happened, then do x;
  if b happened, then do y;
  ...
  goto Event-loop
- Arduino: use setup() and loop()

Solder (robot projects only)

- Solder (Swedish: lödtenn)
- Solder is **fragile** and breaks easily
- Solder is a **bad** conductor
- Solder is **not sticky** in itself
- ...but solder can protect against corrosion
- ...and solder keeps things in place,
  unless of course you push/pull/turn

Commercially-available solder

- Get solder with *flux* (Swedish: flussmedel)
- Flux is in channels inside the solder, cleans the soldering joint
- Leaded solder is poisonous
  - don't eat it, don't throw it in the bin
- Unleaded solder requires higher temperature
  - components get damaged more easily

Soldering iron (Swedish: lödkolv)

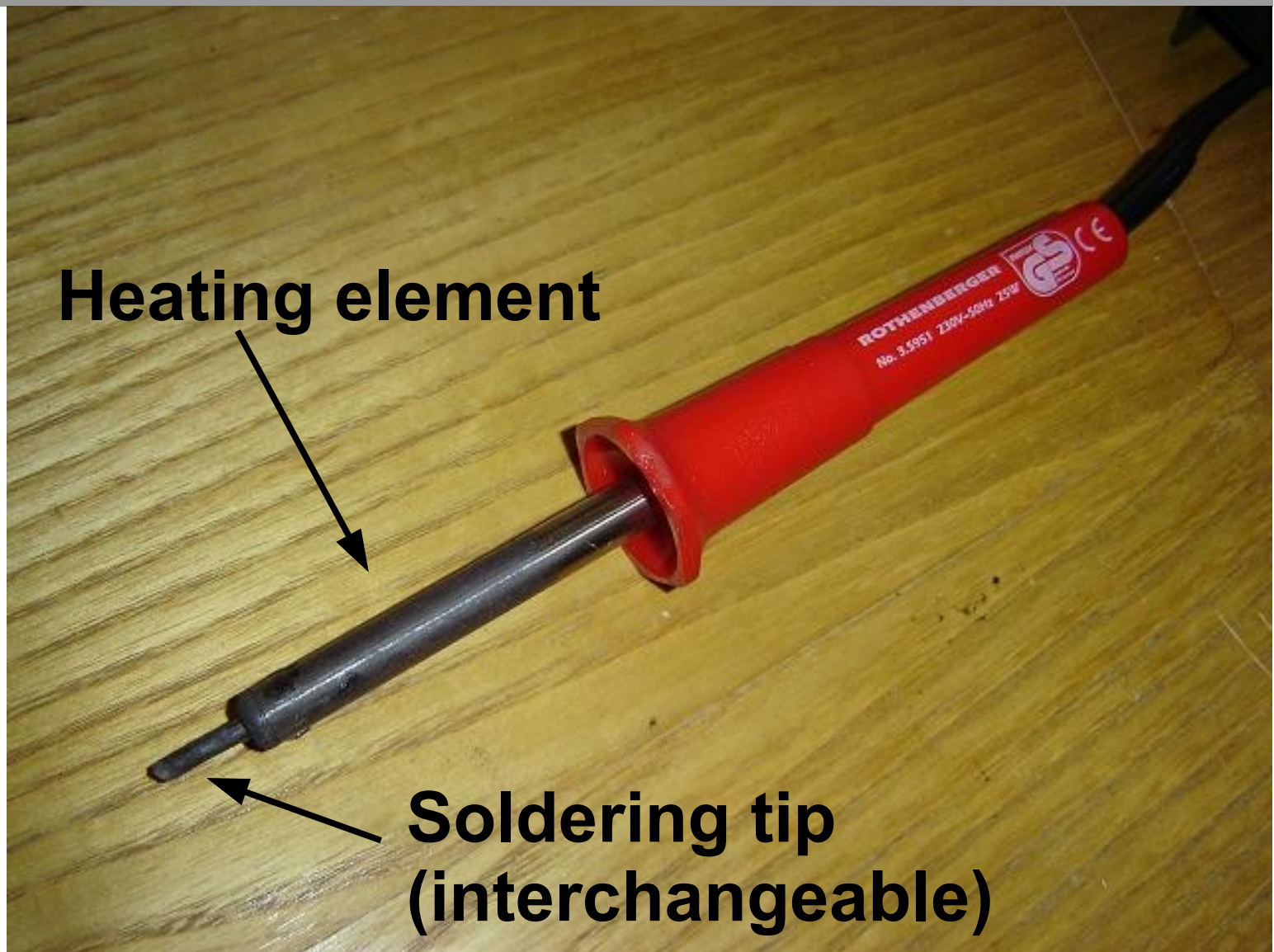


Photo: Peter Trieb.
Public Domain.
http://commons.
wikimedia.org/wiki/
File:Loetkolben.jpg

Text: F Lundevall
Public Domain.

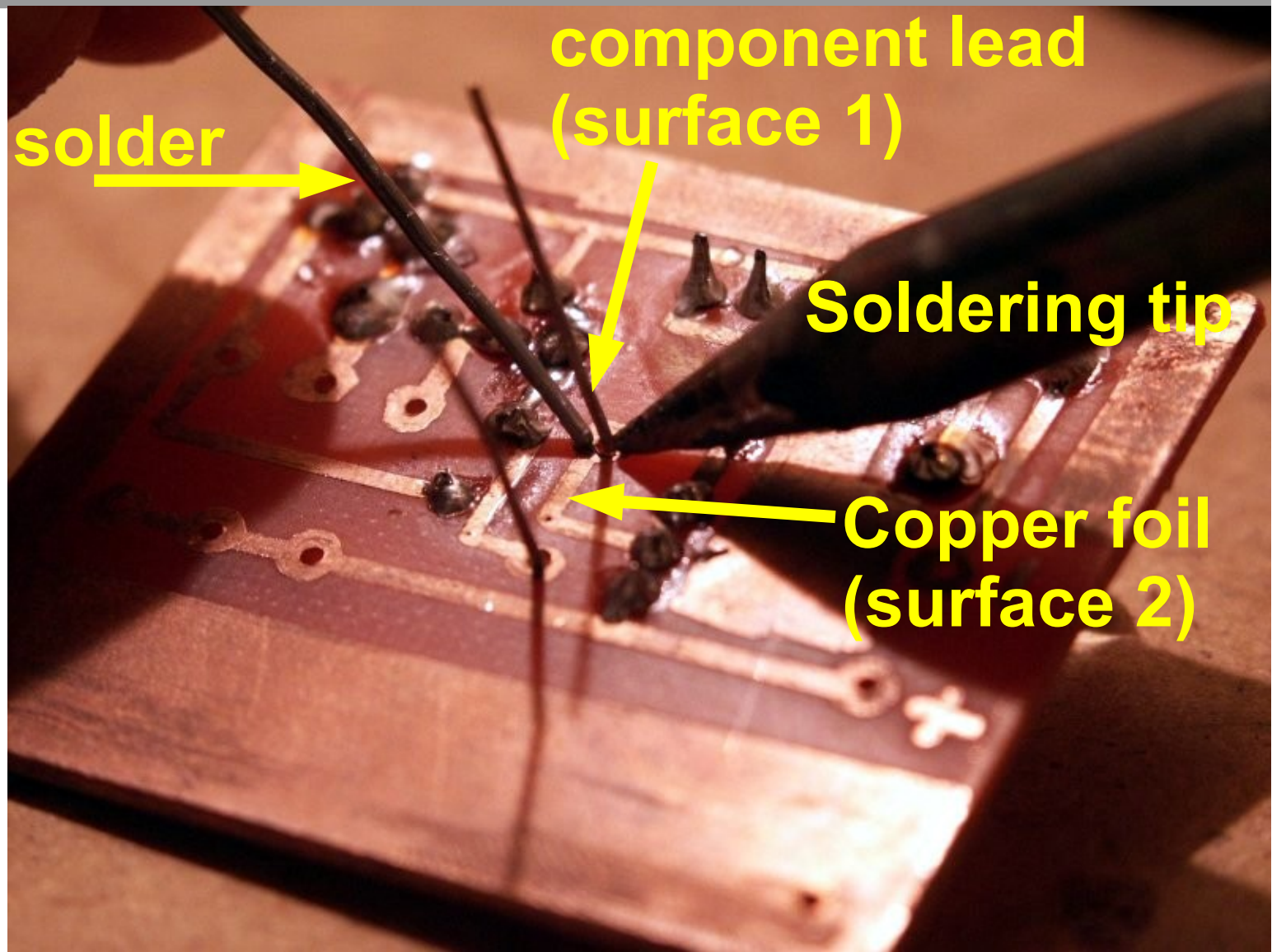
Preparations before soldering

- Moisturize the sponge
- Heat up the soldering iron
- Put a tiny amount of solder on the tip
  - the flux will clean off any dirt from the tip
- Tie leads together, fasten, turn so that the two metal surfaces are in contact

The process of soldering

- Put soldering iron to one of the surfaces
- Let the other surface heat up from the first
- Put solder on other surface
  - when surfaces are hot enough, solder melts
  - when solder melts, flux cleans surfaces
- When surfaces full of solder, remove iron

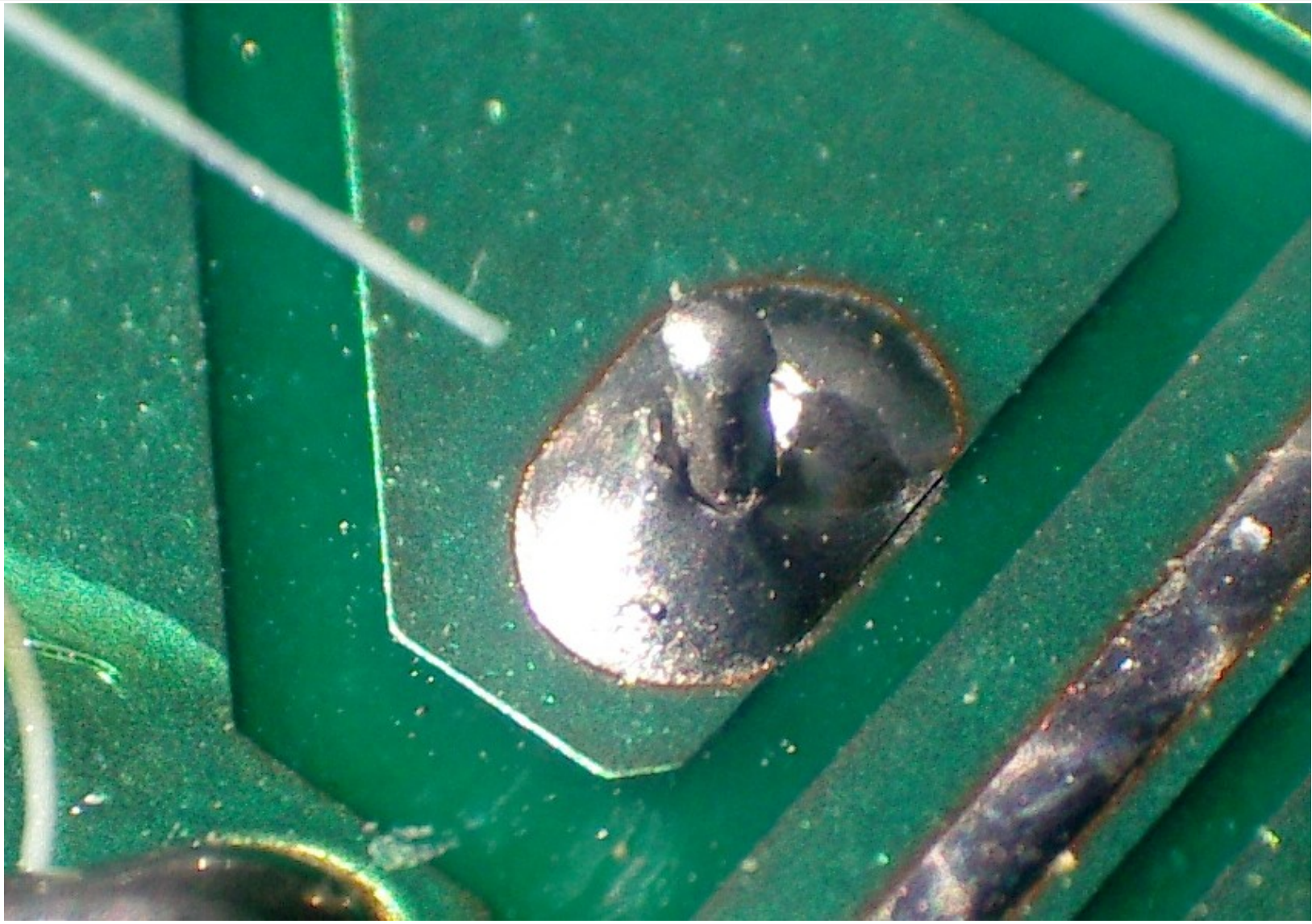
Soldering iron heats surfaces, then surfaces heats the solder



ALWAYS

- Iron should heat up surface 1,
  - surface 1 should heat up surface 2,
  - surface 2 should heat up the solder
- This ensures both surfaces are hot enough
- BUT: be quick, don't fry your components

A “cold” joint - when you've failed



NEVER

- NEVER put solder on the tip while soldering
- The flux will clean the tip, not the surfaces
- The surfaces will not be hot enough, so they will not stick to the solder
- “Cold” joints look mostly like any joint
- A “cold” joint may work for an hour, or a day
- You move your robot, and it stops working