



# Free lab and robotics

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# Why?

- Most of the applications of physics and material science
  - Multidisciplinary
  - Engineering is an essential part
- Students are more motivated if they understand and see the outcome of their work is something useful



# Problem

- Only few courses involve some practical hands-on activity
- Lack of knowhow
  - Mechanical and electrical engineering
  - Teamwork and project planning



# How to solve?

- Robotics
  - Multidisciplinary teamwork
  - Cool 😊
  - Quick results in some extent



# Plan

- Student robotics contest
- Small projects from companies
- Multidisciplinary science projects involving material science and robotics



# What really happened?

- Robotics contest Robotex
  - since 2001

# 2007



# 2006

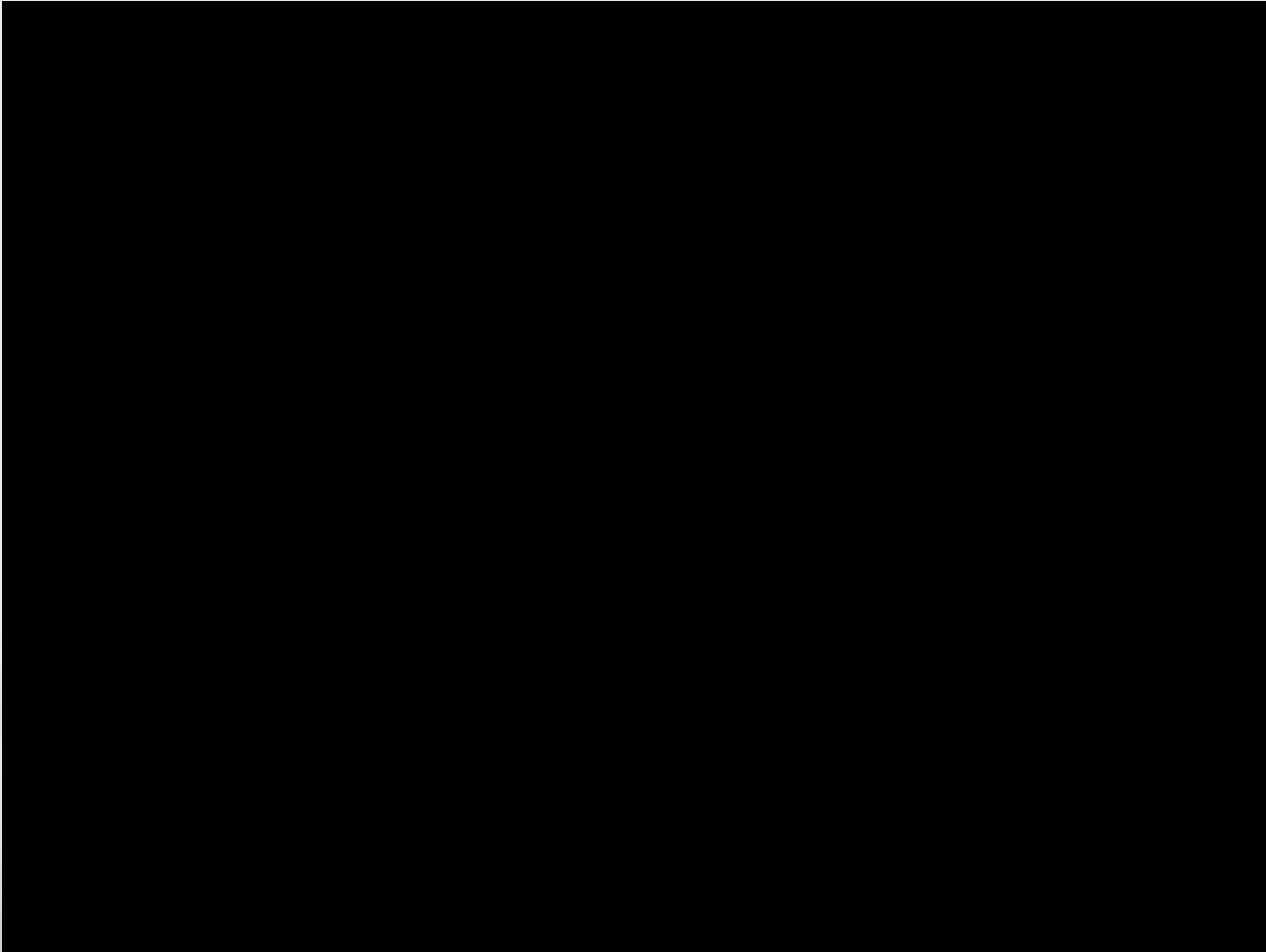




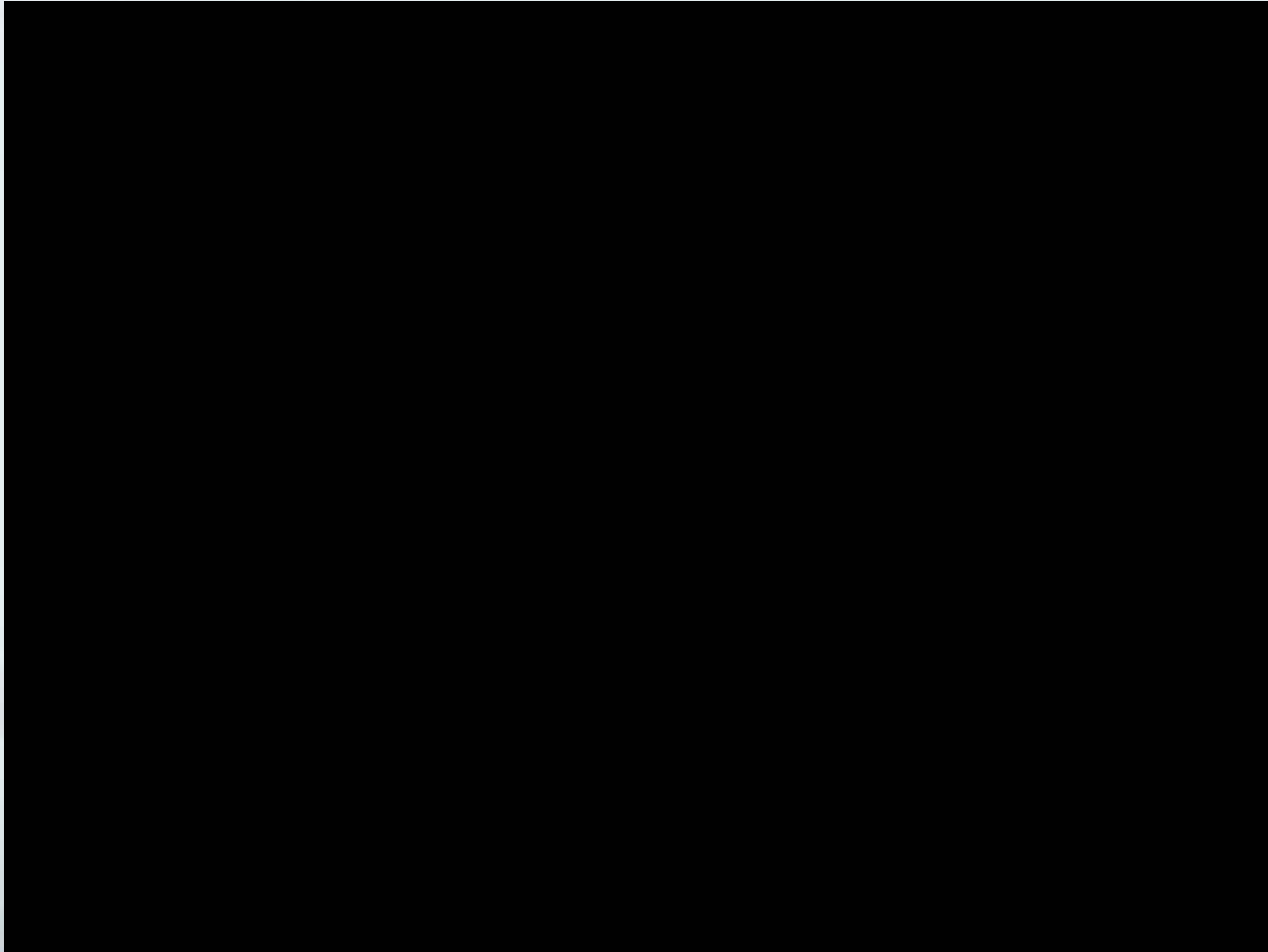
# Free Lab

- Lab equipped with electrical and mechanical engineering equipment
  - 24/7 access for students
  - No permanent staff at place
  - Usually individual supervision
  - Minimal supervision

# Team 2007



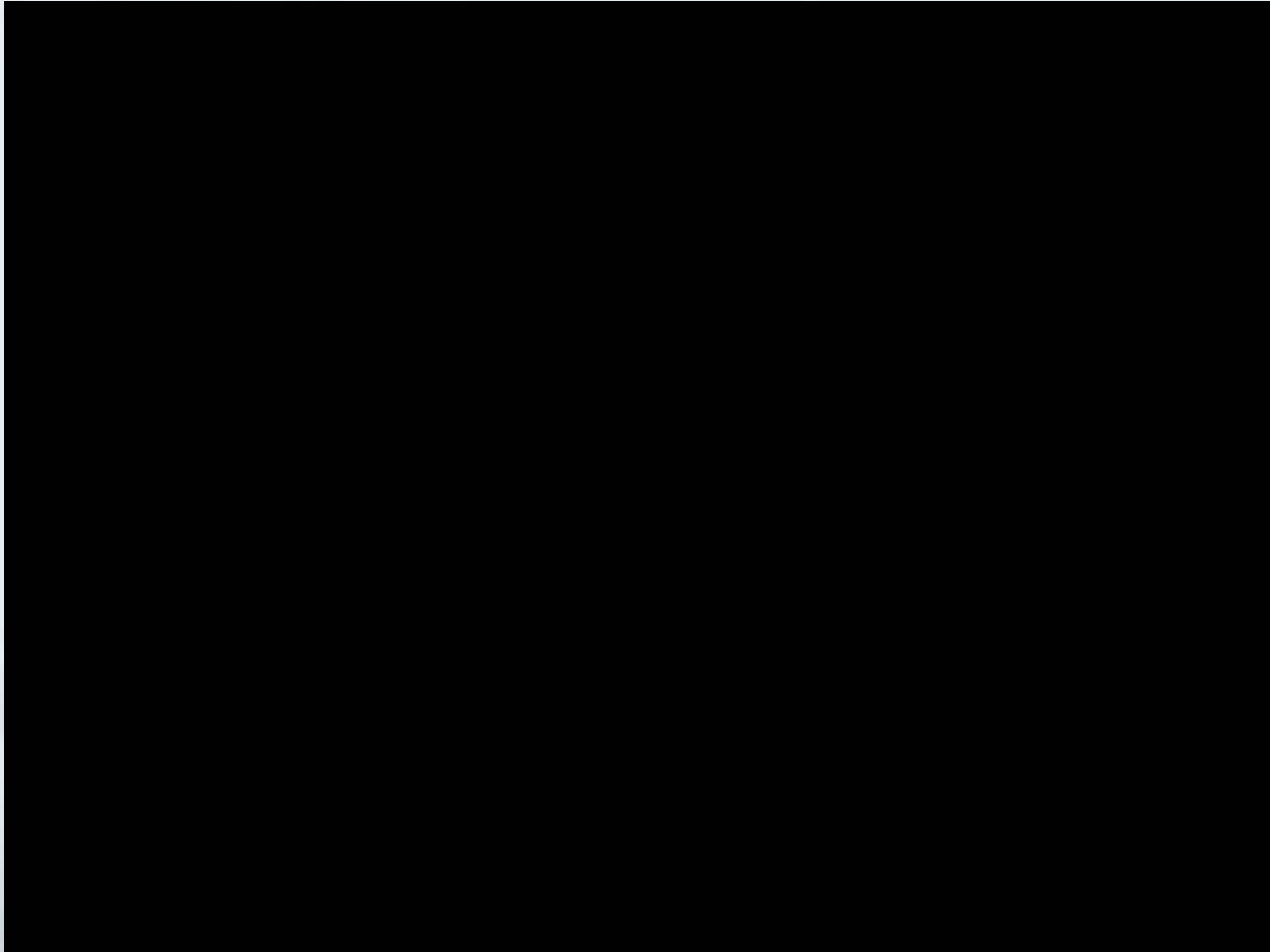
# Art work



# Object oriented programming



# Robotics farm for science center





# Conclusion 1

- Two ways of projects:
  - Well financed, common project management driven
  - Selforganized highly-selfmotivated
    - Result is unexpected but in some cases excellent



# Conclusion 2

- If there is a good tool, people will find how and for what to use it for good purpose
  - Access to lab
  - A lot of small projects
    - Other courses
    - Diploma, master works
    - Science bus

# Conclusion 3

- Trust people!
  - But not let them feel that you do not care



# Conclusion 4

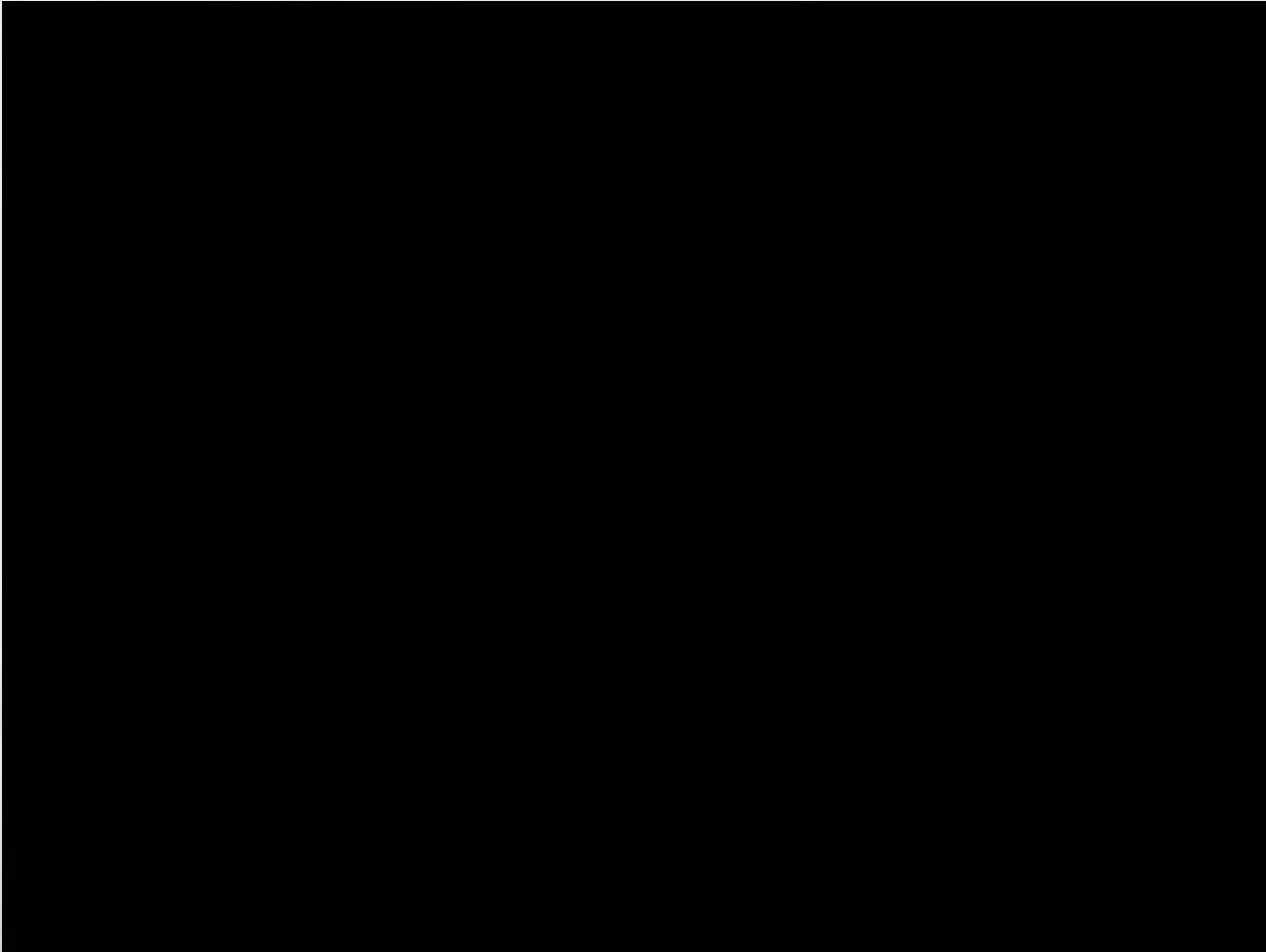
- Smart people are able to self-form a loose organization (club)
  - not top level effective, but works
  - competence based voluntary supervision



# Conclusion 5

- This is one very effective way to filter out really smart and motivated students for serious tasks (science lab, applied projects, education)

# Robotics for Kids





Thank you!

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