



Robot Construction Basics

If you think you can,

or

if you think you can't,

You are right!

Henry Ford



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Agenda:

- Three things everyone needs to know
- Example Workplan – some assembly required
- 5 Golden rules – one for each finger



Three things everyone needs to know:

- What are we going to do and when are we going to do it?
- How are we going to play and win the game?
- What is our robot going to do and how is it going to do it?



Three things everyone needs to know:

- Workplan
- Game Strategy
- Robot Design Specification



Three things everyone needs to know:

Workplan

- First thing your team should work on
- Shows what is going to be done, when it will start and when it will end
- Keep it simple



Three things everyone needs to know:

Workplan

- Updated and revised at least every week in response to current status
- Keep a log of your actual competition dates to improve your next year's workplan
- You *will* finish on Tuesday, Feb 21, 2006



Three things everyone needs to know:

Game Strategy:

- What you need to do to win the game
- Your strategy to play and win the game
- What your robot needs to do
- What your drive team needs to do



Three things everyone needs to know:

Robot Design Specification

- Tells what robot will do (how fast, how strong, what it can lift or move)
- Lists size and shape of robot (height, width, length, weight, weight distribution, ground clearance, wheelbase, etc)



Three things everyone needs to know:

Robot Design Specification

- Lists what designs will be used (driveline, chassis configuration, arm and gripper design, etc)
- Lists what components will be used (motors, controllers, sensors, relays, pneumatics, etc)



Three things everyone needs to know:

- Post big copies of workplan, game strategy, and robot specification in your team room so everyone will see it every day
- Have each team member sign these copies to show their agreement and commitment to your team's plans

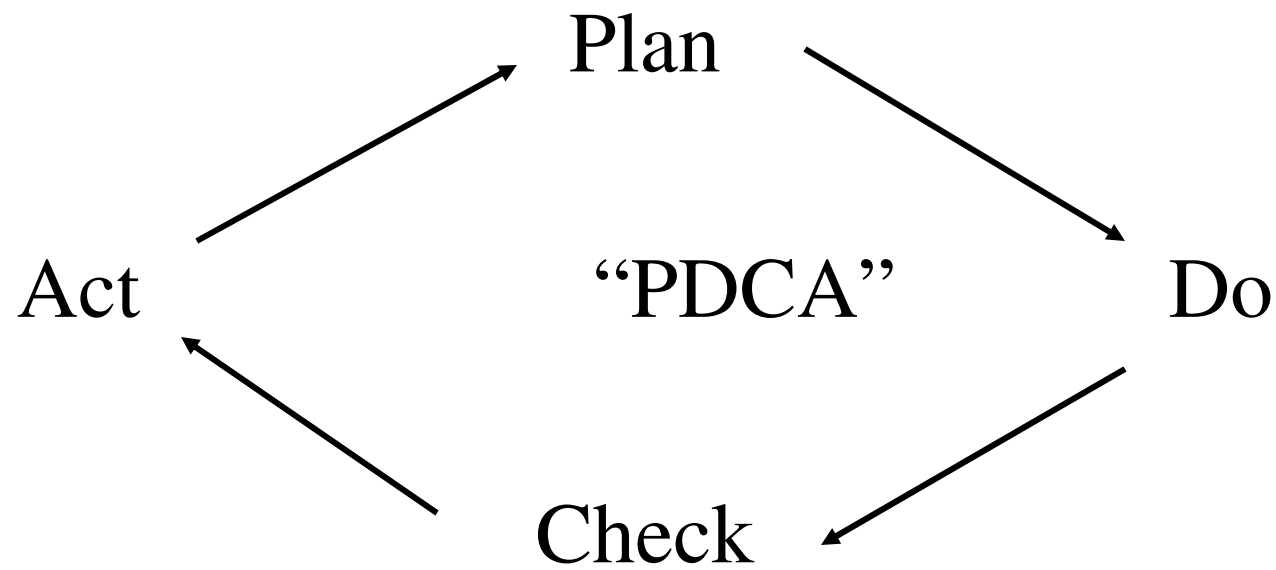


Example Workplan

Team Ford First



5 Golden rules – one for each finger





5 Golden rules – one for each finger

“Don’t Reinvent the Wheel”

- What worked (or didn’t work) last year
- Think Ford FIRST
- FIRST and Chief Delphi Websites
- Things you use and see everyday



5 Golden rules – one for each finger

“KISS – Keep It Simple, Stupid!”

Simple designs are

- Easy to make
- Easy to assemble
- Easy to repair
- But take a lot of thought and inspiration



5 Golden rules – one for each finger

“You can’t go wrong if you make it strong”

- Your designs need to be both strong and stiff – triangles good, rectangles bad
- Problems usually occur at joints
- Stiffness and strength do not mean heavy



5 Golden rules – one for each finger

“Do it right, sleep at night”

Taking a little extra time now to check your work or do it a little bit better or finish it on schedule will have big payoffs later.

Do you really want to pull all nighters before the ship date?



*Thank you for your attention
and
Good Luck!*