



Palos Verdes Institute of Technology

Kickoff and Open House
25th September 2011

pvit.org

Palos Verdes Institute of Technology

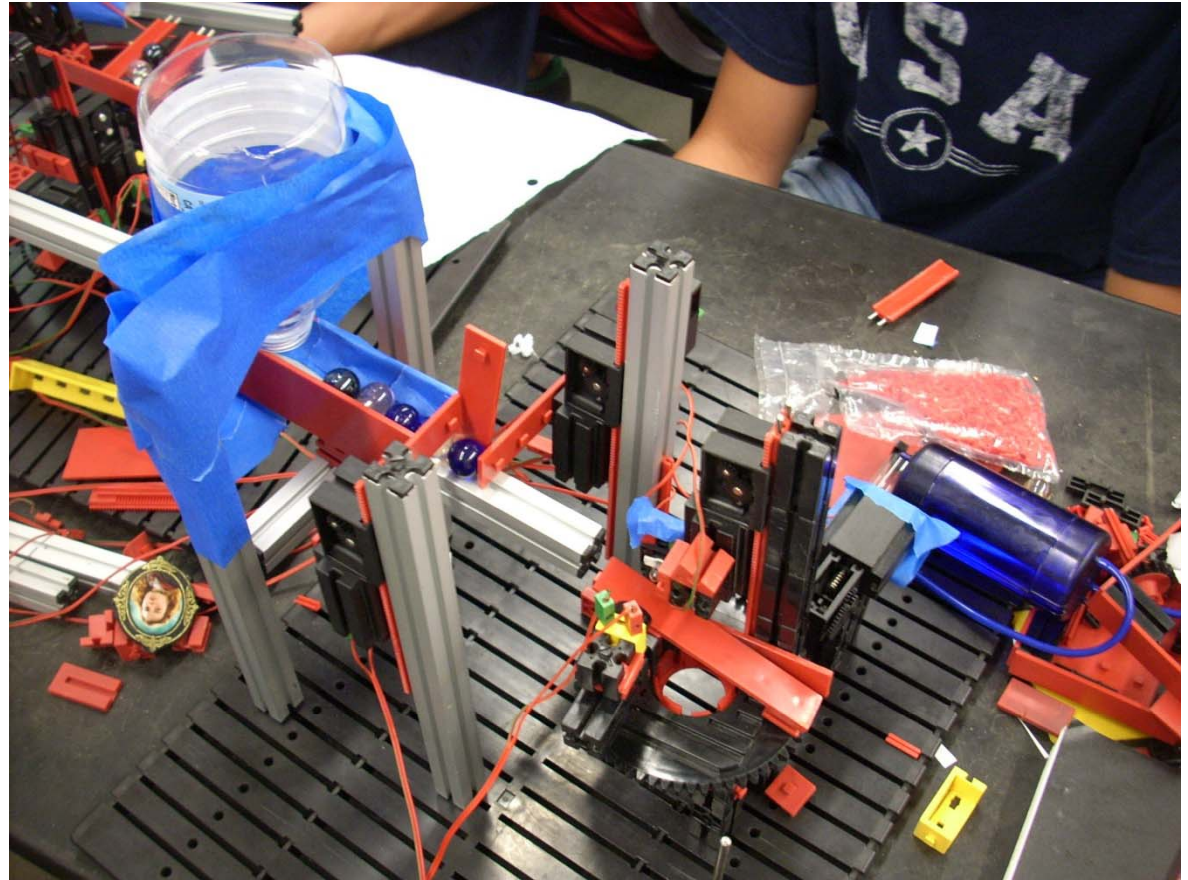
- Founded in 1987. Re-started in 2002.
- 2002-2005: participated in the DARPA Grand Challenges I and II
- 2006: re-formed around a number of smaller projects
- In the past five years our teams have build underwater ROVs, electric cars, autonomous vehicles
- We've competed against top colleges, won competitions, and sent teams to state science fairs, RoboGames, MIT, and NASA in Houston
- 2011-2012 will be our busiest year yet!



PVIT Today

- PVIT Classes
 - Part of the school curriculum
 - Developed by *Project Lead the Way (PLTW)*
 - A comprehensive and recognized advanced technology program
- PVIT Club
 - A chance to put what you learn in class into real-world use
 - Advanced projects that go beyond the classroom and high-school level
 - Fun!

PVIT Classes



IED, POE, DE, CEA, EDD

Science Olympiad

- Competitions in February in general science and engineering
- Always need engineers for the building events such as tower building, flying helicopters, etc.
- See James Warren, Science Olympiad coach

PVIT Club

Why wait until college...?

- To tackle challenging projects?
- To build complex systems?
- To go beyond what you learn in class?
- To put theory into practice?
- To understand teamwork and projects?
- To do something outstanding?
- To have fun with technology?



PVIT Club

- Meets Sundays, 1pm – whenever (usually around 4pm)
- Multiple teams working on multiple projects
- Open to anyone from PVHS, Peninsula, and PVPUSD 8th Graders
- Open to everyone, not just people taking PVIT/technology/science classes
- Supported by industry and academic specialists and parent volunteers

Programs/Teams for 2010-2011

- Underwater ROV
- Electric Car
- Robotics
 - Robomagellan
 - Autonomous Unmanned Aerial Vehicle
 - Mech Wars
- Cyber Patriot
- Solar Canoe
- Other projects – have an idea? Let us know!

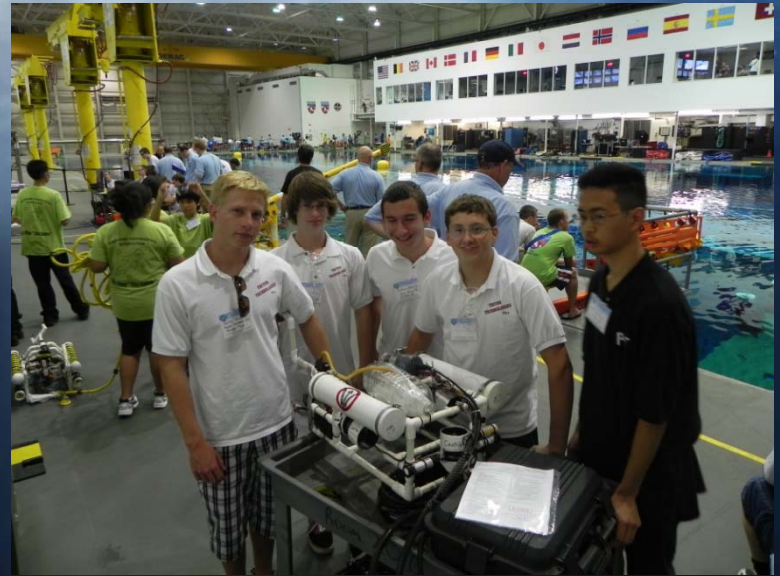
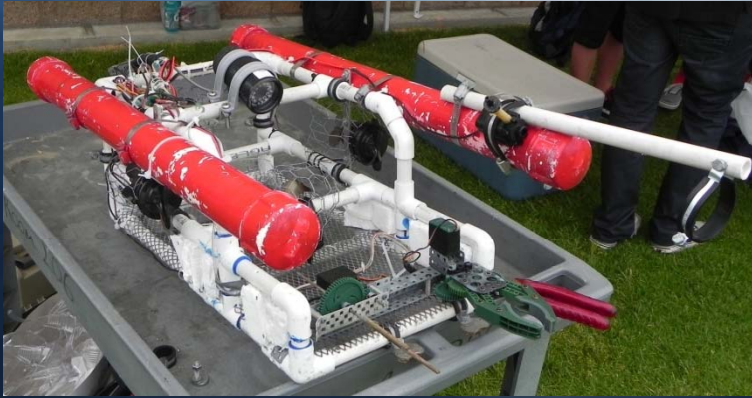
Benefits of Participation

- School credit is not given for PVIT Club activities but...
 - It gives you something special for your college application
 - Makes it easy for teachers to write something unique on your recommendations!
 - Gives you the opportunity to work with corporations and colleges that may lead to internship opportunities
 - Get a head start on you senior year project
- Credit is available for “7th Period” Science Research.

Parents – We need your Help!

- Money
 - Please consider making a tax-deductible donation through the booster club
 - write PVIT Club on your check.
 - Donations of equipment – we will start to circulate a list in the next couple of weeks.
- Time
 - Need two adult leads per project.
 - Need further support for field trips, other off campus activities and general organization.
- Talents
 - Engineering, project management, programming business management, web design, amateur radio, construction, electronics etc. etc. Everyone has something to contribute.
 - If you can't volunteer on a regular basis, please join our pool of “on call” experts who can jump in as and when needed.

Underwater ROV



Ψ Team Driven

Ψ Internationally Competitive

Ψ Diverse Skill Sets Needed

Ψ - Circuitry

Ψ - Design

Ψ - Business

Ψ - 3D Mill & Printer

Ψ PVHS ROV Team 2012



Electric Car

- Lots of projects to get it on the road



RoboMagellan

- Robotics competition focused around autonomous vehicular navigation
- No human interaction with the robot while its on the course
- The robot must navigate around obstacles and over varied terrain in a park setting and touch an orange traffic cone
- GPS, Sonar, Cameras, Lasers, Touch sensors are all used to successfully touch the end cone



Autonomous UAV

Goal:

Design, build, and program a fixed wing aircraft or helicopter that will be capable of flying an aerial GPS course without any human interaction.

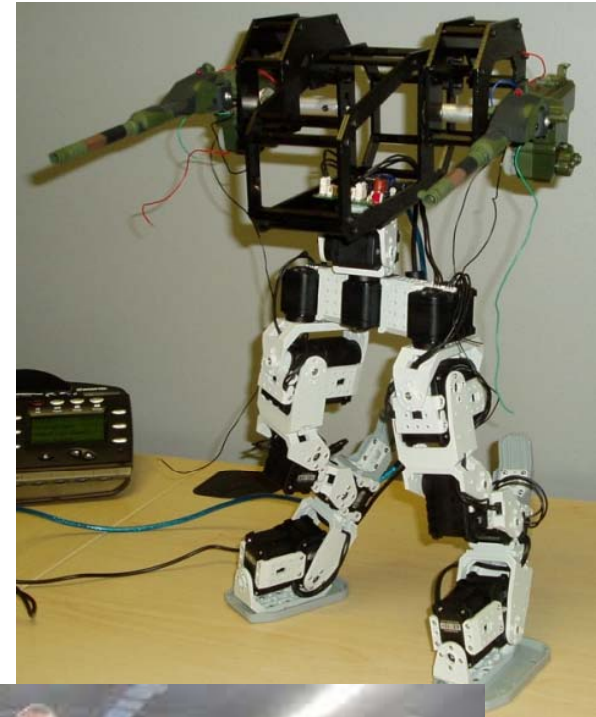
Skills:

- software design and coding
- aerospace engineering



Mech Wars

- A contest of humanoid robots fighting in a scaled down cityscape
- Design, construct, and program a bi-pedal (two legged) robot to shoot airsoft weapons at opposing robots
- Compete at the Robogames in San Mateo, CA



Cyber Patriot



- Experience with many Windows and Linux Operating Systems, including Server versions. Understand how to install an OS, partitioning, hidden files, services, network settings, file sharing, user creation.
- Experience with Command Line interface for Windows and Linux. Be able to bypass the GUI to perform many basic tasks and also to use tools that are CLI only such as arp, netstat, ping, ipconfig, or tracert.
- Knowledge in basic networking and services – physical and logical addressing, how packets travel, TCP/IP protocols and ports, how to use a packet analyzer, DHCP, DNS, Web Services, SQL, FTP, Telnet.
- Knowledge in basic systems hardening – OS updates, group policies, OS patching, password strengthening, OS service packs, malware detection, common vulnerabilities . . . Oh, wait . . . did I say OS updating?
- Proficient in research to find solutions on the Internet and in reference books

Solar Canoe

- **Solar Cup** is a seven-month program that begins in the fall, in which high school teams totaling about 800 students build and race solar-powered boats at Lake Skinner, in Temecula Valley, learning about conservation of natural resources, electrical and mechanical engineering, problem solving and much more.





Thank You
Questions?

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