The New York Times

NEW YORK, SATURDAY, FEBRUARY 15, 1992

Business Day

Contest Aims at Future Engineers

By GLENN RIFKIN

Special to The New York Times

MANCHESTER, N.H., Feb. 14 — The high school gymnasium is packed with screaming fans, but instead of a basketball game, the students are watching strange-looking robots with names like "Da Cat" and "the Devastater" maneuver through a big box filled with feed corn, trying to scoop up tennis balls.

At each robot's remote controls are high school students being coached by professional engineers and scientists from Motorola, Xerox, I.B.M. and 25 other companies and universities. For the last two months, the students and engineers have worked together designing and making the robots.

Effort to Break Barriers

Companies like A.T.& T., Boeing Delco Electronics, General Electric, Raytheon and Nynex and schools like M.I.T., Harvard and Dartmouth have provided teams of volunteer engineers and scientists to "adopt" a local high school class and design and build a remote-controlled mechanical vehicle to compete.

"The interaction between the corporations and the high schools is critical," Dr. Allan D. Bromley, President Bush's science adviser, said amid the din emanating from the gym. "Far too few kids ever get a chance to see what an engineer or scientist really does. This kind of event can break down those barriers."

The event, part of a national competition in creative engineering called the Maize Craze, is the first of four regional contests that will culminate in a national championship later this year. Though it is hardly the first national science competition, it is

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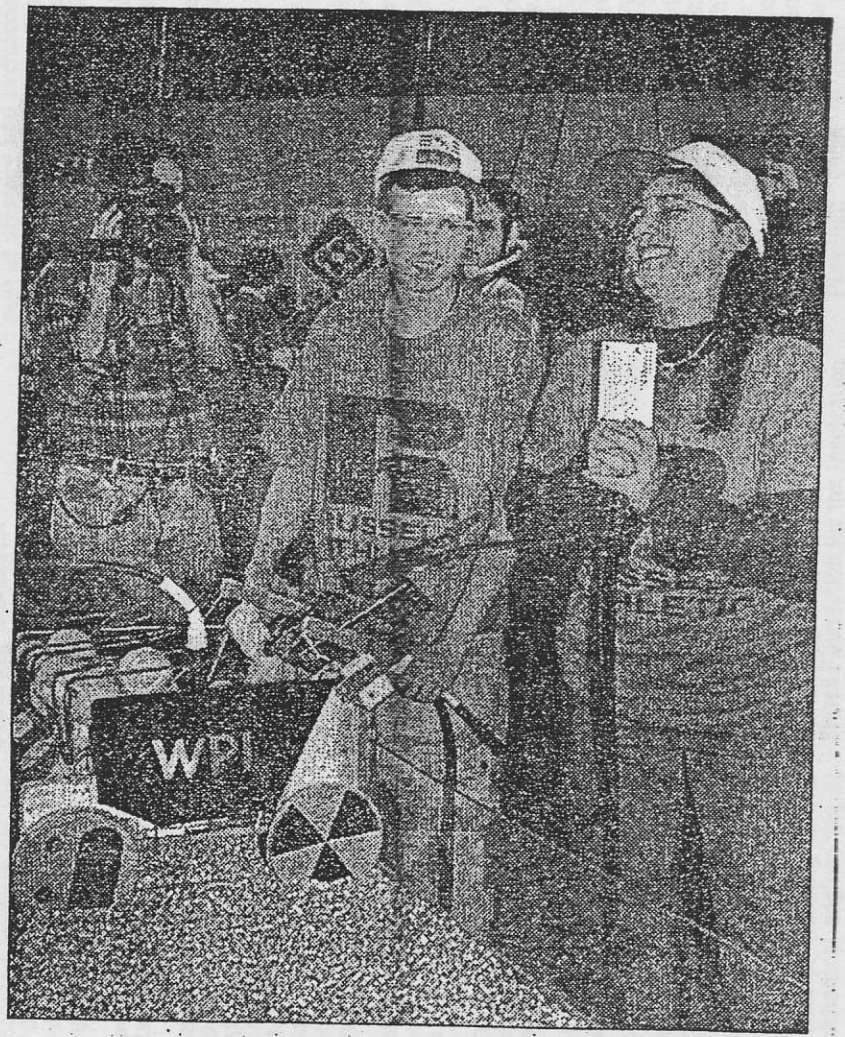


Michael Quan for The New York Times

At Memorial High School in Manchester, N.H., Nicole Weiner, right, and Scot Trudeau showed their satisfaction on Thursday when the robot they designed and built turned in a commendable performance. The initials on the robot's side stand for Worcester Polytechnic Institute, whose engineers guided and advised the two contestants.

A Contest That Aims at Future Engineers

Continued From First Business Page

unique in teaming high schoolers with high-powered engineering teams from big companies or universities.

"If big companies want our country to be successful and to have a source of educated workers for the future, they'll have to do this," said James J. Wynne, a physicist and program manager for local education outreach at the International Business Machines Corporation's Yorktown Heights Research Laboratory. "In Japan, engineers are heroes. Here, athletes are heroes. By creating a hands-on sports atmosphere around engineering, you have a chance of drawing youngsters to it."

For the Maize Craze, contest officials got in touch with the 28 sponsoring organizations in mid-December and gave them barely two months to find schools to sponsor, develop and design the robots and get to Manchester for the competition.

"I had no interest in engineering before this," said Nicole Weiner, a junior at Doherty Memorial High School in Worcester, Mass., whose team worked with engineers from Worcester Polytechnic Institute. "But now I'll definitely be considering that as a career."

The idea came about because of the efforts of Dean Kamen, a frenetic 40-year-old physicist, inventor and self-made millionaire who is obsessed with the relentless decline in America's science and math skills.

He approached Dr. Woodie Flowers, a professor of teaching innovation and mechanical engineering at the Massachusetts Institute of Technology, who designed the contest. He patterned it after M.I.T.'s 2.70 contest, a similar design competition where students are given bags of equipment that are to be used to accomplish a certain task.

Part of an effort to reverse the decline in U.S. science and math skills.

"We've designed the contest so that there is no right way to do it," Dr. Flowers said. "We wanted to have an ambivalence factor. The teams must ask themselves: 'Should I try to block the other machines? Should I just concentrate on offense or defense?' "

Aiming for Cultural Change

Mr. Kamen is convinced that a cultural change in attitude can be accomplished only by using the marketing prowess and muscle of America's top corporations.

"Every kid in this country knows who Ronald McDonald is, but not one of them could name the Nobel Prize winner in physics," Mr. Kamen said. "Clearly the hamburger stands know something we need to learn."

Mr. Kamen, who made millions by inventing an insulin infusion pump when he was in college, has spent the last four years putting his money where his mouth is.

He created USFirst, the United States Foundation for the Inspiration of Science and Technology, a Manchester-based nonprofit coalition of corporate executives, government officials and academicians. He calls it "the Olympic Committee of Smarts" and says its focus is "making kids go to bed thinking about superconductors, not the Super Bowl."

Ronald Campbell, senior vice president of strategy and architecture at the Xerox Corporation, sent out an electronic mail message one morning seeking volunteers and had a team by 4 P.M.

For the students, the commitment meant long bus rides to Xerox after school and early on Saturday mornings. "That was a sign of success for us," Mr. Campbell said. "We saw the excitement and enthusiasm they brought to the project."

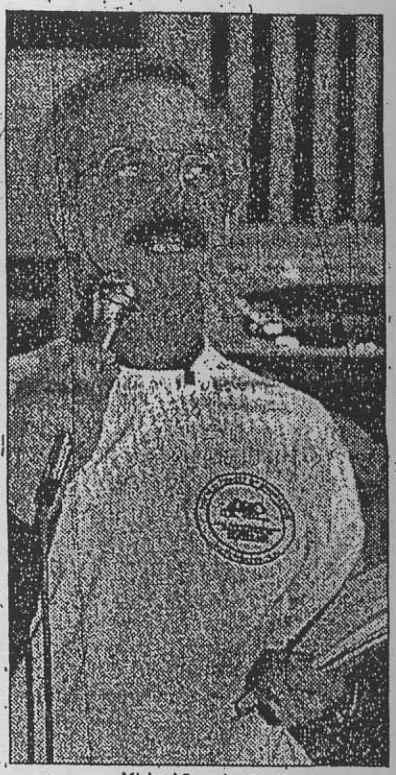
The rules were simple: each team built its robotic device from a kit consisting of $200 worth of electromechanical parts. The sponsoring companies were allowed to use any equipment or personnel to design and build the machines.

Interest From the White House

The concept is gaining credibility in the technology community. Preceding the final round today, a Maize Craze awards dinner here on Thursday night drew 1,200 contestants, teachers, engineers and corporate sponsors and was addressed by Dr. Bromley, the White House adviser. It was also attended by John H. Sununu, the former White House chief of staff; Roland W. Schmitt, the president of Rensselaer Polytechnic Institute, and Ray Price, the president of the Economic Club of New York.

President Bush stopped in on Wednesday night to endorse USFirst and invite the regional Maize Craze winner to the White House.

The winning team, chosen today, is from Clinton High School of Clinton, Mass., a small town west of Boston, which worked with Nypro Inc., a medical equipment maker in Clinton.



Michael Quan for The New York Times

Dr. Woodie Flowers, who designed the Maize Craze contest, acted as host for the competition round at Memorial High School this week in Manchester, N.H.

The Union Leader

MANCHESTER, N.H. — SATURDAY, FEBRUARY 15, 1992

Clinton (High) Will Be Going to White House

By JOHN CLAYTON
Union Leader Staff

Regardless of the outcome of Tuesday's Presidential primary, it looks as if Clinton's going to the White House.

Not Bill Clinton. Clinton High School.

Students from the central Massachusetts community were booking passage to Washington for an audience with the President after capturing first place in the "Maize Craze," an innovative, national engineering competition held yesterday at Memorial High School.

The contest, sponsored by U.S. FIRST, matched top design engineers from the nation's leading businesses and universities with high school students from around the country, and the result was a rip-roaring, two-day foray into gladiator-style scientific competition.

In the elimination-style format, each of the 28 teams was given a kit filled with a bizarre array of pre-selected materials and given six weeks to assemble a remote-controlled robotic creature that could venture about a 16-foot-by-16-foot playing surface for the express purpose of retrieving tennis balls.

To complicate matters, however, the playing field was covered with two inches of loose, coarse seed corn (hence the name "Maize Craze"); four machines took part simultaneously; and high school students had to control the machines in two-minute heats.

Sounds bland in theory, but in reality the atmosphere was as electrified as the competing machines, like the "NY-alator," the winning unit assembled by the Clinton kids and engineers from NYPRO Inc., a Massachusetts-based manufacturer of plastic industrial components.

With a gymnasium full of students cheering their every move, the teams that survived Thursday's preliminary rounds started the march yesterday to The Final Four, an athletic metaphor that was not out of place in this academic contest.

"If we don't change the way we think about science in this country, we'll still be a very competitive nation, but only in football and basketball," said U.S. FIRST founder Dean Kamen. "We need to show our kids that creative engineering can be as fun, as exciting and as rewarding as sports."

Fun? Like when Central High physics teacher Sue Krolikowski leaped in the air at the success of "The Little Green Machine," a joint creation of her students, GE Aircraft and New Hampshire Technical College in Manchester?

Exciting? Like the look of exhilaration on the face of Memorial High's Jay Comire as the Crusader-Raytheon entry — dubbed "Terminator III" — moved into the last elimination frame?

Rewarding? Like the pride reflected by the West High-Manchester Kiwanis team at receiving the "Best Defensive Maneuver" at Thursday's awards banquet?

All of those elements came into play shortly before noon yesterday, as The Final Four took the field. The entries included Delco Electronics-Kokomo (Indiana) High; Motorola Inc.-Wheeling (Illinois) High; Worcester Polytechnic Institute-Doherty (Mass.) High and the NYPRO-Clinton High team.

The first team to capture two of the two-minute heats would claim the championship, and it didn't take long for the "NY-alator" to live up to its name. With Clinton students Jon Payne and Hugo Medeiros manning the controls, their machine was cleaning house, and when a last-ditch blocking effort by Delco and Motorola fell short, the title went to Clinton.

There were no losers, however, as Kamen was quick to point out.

"This didn't just meet our expectations, it exceeded them by the widest margin imaginable," said Kamen, "and the attention it has generated can only help us in our goal to be analogous to the U.S. Olympic Committee, only we want to promote science and math literacy.

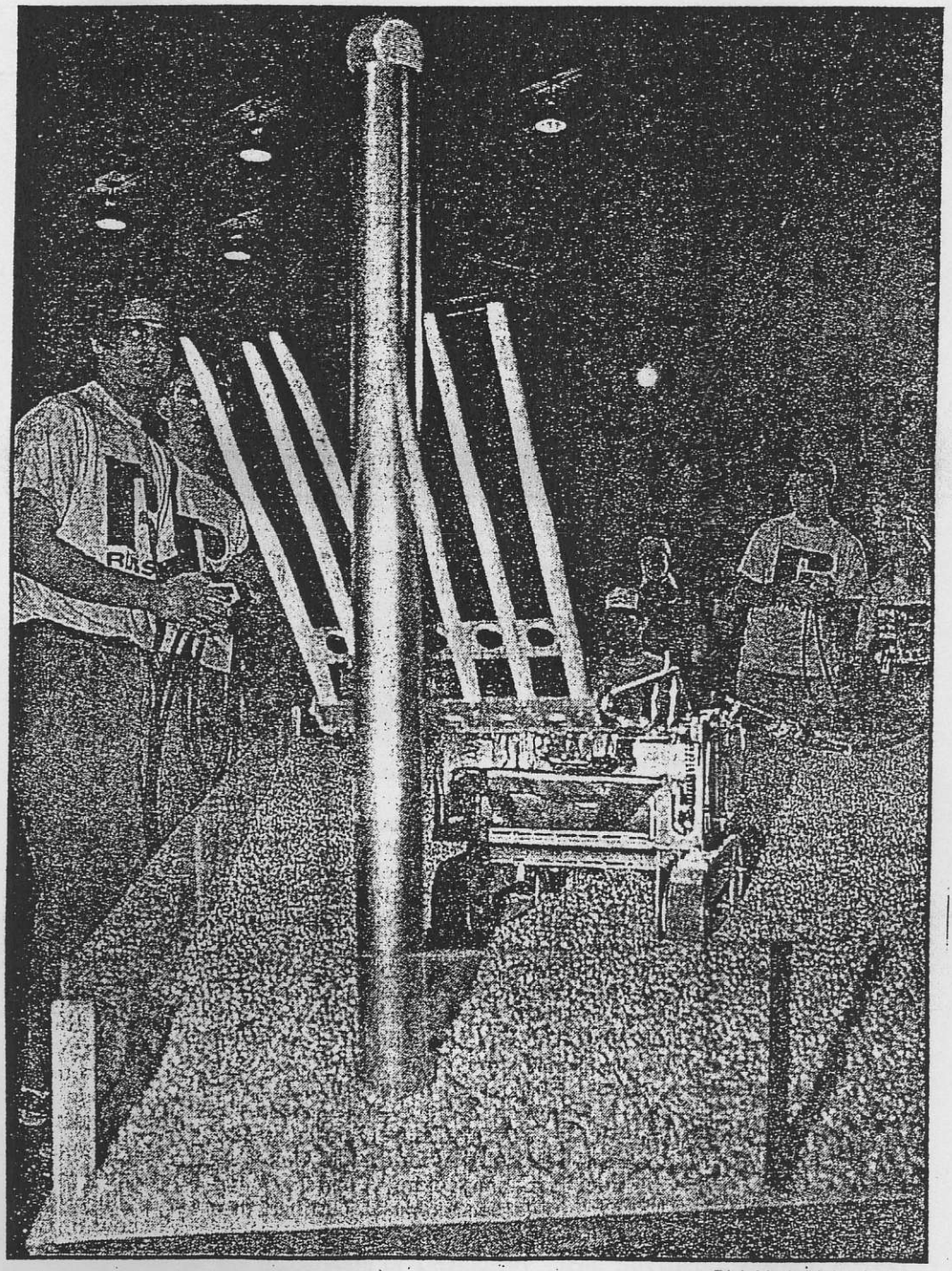
"In the future, we think companies will be competing to sponsor teams here just like they compete to sponsor athletic teams, and based on our success here today, we think it will grow exponentially."

While the NYPRO-Clinton team captured the overall title, the team of Xerox and the Joseph C. Wilson Magnet School from Rochester, N.Y., won the Chairman's Award for the best involvement between school and sponsor.

Other awards were presented in the following categories: Most Creative Design: NYPRO-Clinton; Best Offensive Round: WPI-Doherty; Best Defensive Maneuver: Kiwanis-Manchester West; Most Photogenic: Advanced Animation-Rochester (Vermont) High; Best Sportsmanship: Motorola-Wheeling; Best Team Spirit: Xerox-Wilson; Play of the Day: NH Technical College-Central; and The Ultimate Keeper: Delco-Kokomo.

U.S. FIRST • 340 Commercial Street • Manchester, New Hampshire 03101 • (603) 666-3906 • FAX (603) 624-0573

Clinton Wins!



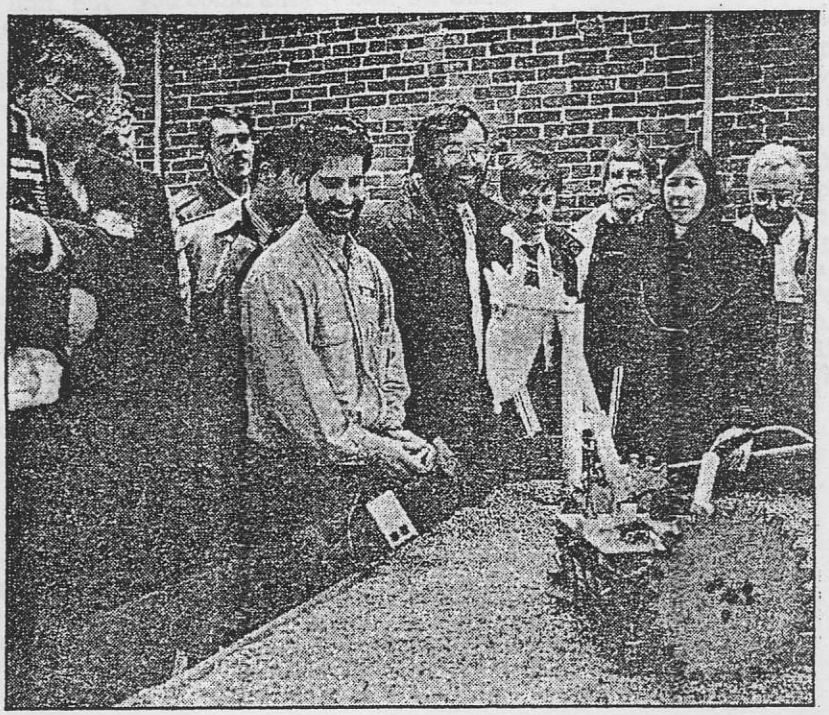
Dick Morin/Union Leader

CENTRAL HIGH'S Arthur Trapotsis, left, and Brain Karcz put the "Little Green Machine" through its paces during the "Maize Craze" engineering competition yesterday at Memorial High School that was won by Clinton (Mass.) High School.

The Union Leader

"THERE IS NOTHING SO POWERFUL AS TRUTH" — DANIEL WEBSTER

MANCHESTER, N.H. — SATURDAY, JANUARY 11, 1992



John Clayton/Union Leader

MANCHESTER industrialist Dean Kamen shows some of the top engineers in the country an example of a solution to the challenge in the creative engineering championship to be held Feb. 13 and 14.

Queen City Is Site For 'Engineer's Super Bowl'

By JOHN CLAYTON
Union Leader Staff

It may have escaped your notice, but Manchester's collective IQ probably doubled last week.

More than two dozen of the nation's finest engineering minds — the Superstars of Technology — were in town to prepare for a competition that has been likened to the Super Bowl of engineering.

It's called "First Encounters," and organizers have billed it as a creative engineering championship to showcase science and technology for America's youth in a format they can best understand — competitive sport.

And in this competition, only the strong survive.

The contestants include engineers from 24 companies such as Digital, Chrysler, General Electric, Raytheon, Boeing, AT&T, Xerox and Hewlett-Packard, and universities such as Harvard, Yale, MIT and Rensselaer Polytechnic Institute.

Those engineers will work in concert with high school students and return to Manchester Feb. 13 for a two-day contest to deter-

FAST CONTEST, Page 14

FIRST CONTEST

(Continued From Page One)

mine who will prevail in this diabolical engineering challenge.

While an eventual winner will emerge from the round-robin tournament, the FIRST emphasis is on student involvement. Thus, special award categories will recognize the most original design and the most attractive unit, but the most important award will go to the company that demonstrates the most novel form of generating student interest.

But first, a word about FIRST.

FIRST is an acronym — For Inspiration and Recognition of Science and Technology — and although the mission of this non-profit alliance of business, government and education can be simply stated, it will be difficult to achieve.

"We are dedicated to promoting science, math and technology as if our future depended on it," said Dr. Woodie Flowers, whose very name could inspire a student to take up the study of botany.

"More specifically, the purpose of this contest is to inspire student interest in, and draw mass media attention to, the wonderful world of science and technology," added Flowers, who is a professor of teaching innovation at the MIT School of Engineering.

It was Flowers who put the visiting engineers through an orientation program at the Granite Street Bar & Grill last week, and you could almost hear the wheels turning in their heads as they tried to grasp the complexities and the subleties of the challenge — just take a kit filled with preselected materials and assemble a remote-controlled machine that will retrieve tennis balls from a 16-by-16-foot playing field.

Only the field will be covered with two inches of seed corn.

And there will be three other machines on the field.

And high school students have to run the machine.

And there's a two-minute time limit.

That's simple enough, isn't it?

"I think it's safe to say this is not the soap box derby," said Flowers, "and we're not asking the engineers to look over the students' shoulders and teach them things. This is a full-bore professional design activity with students taking part, and the goal is not to teach, but to motivate."

Manchester industrialist Dean Kamen nodded in agreement.

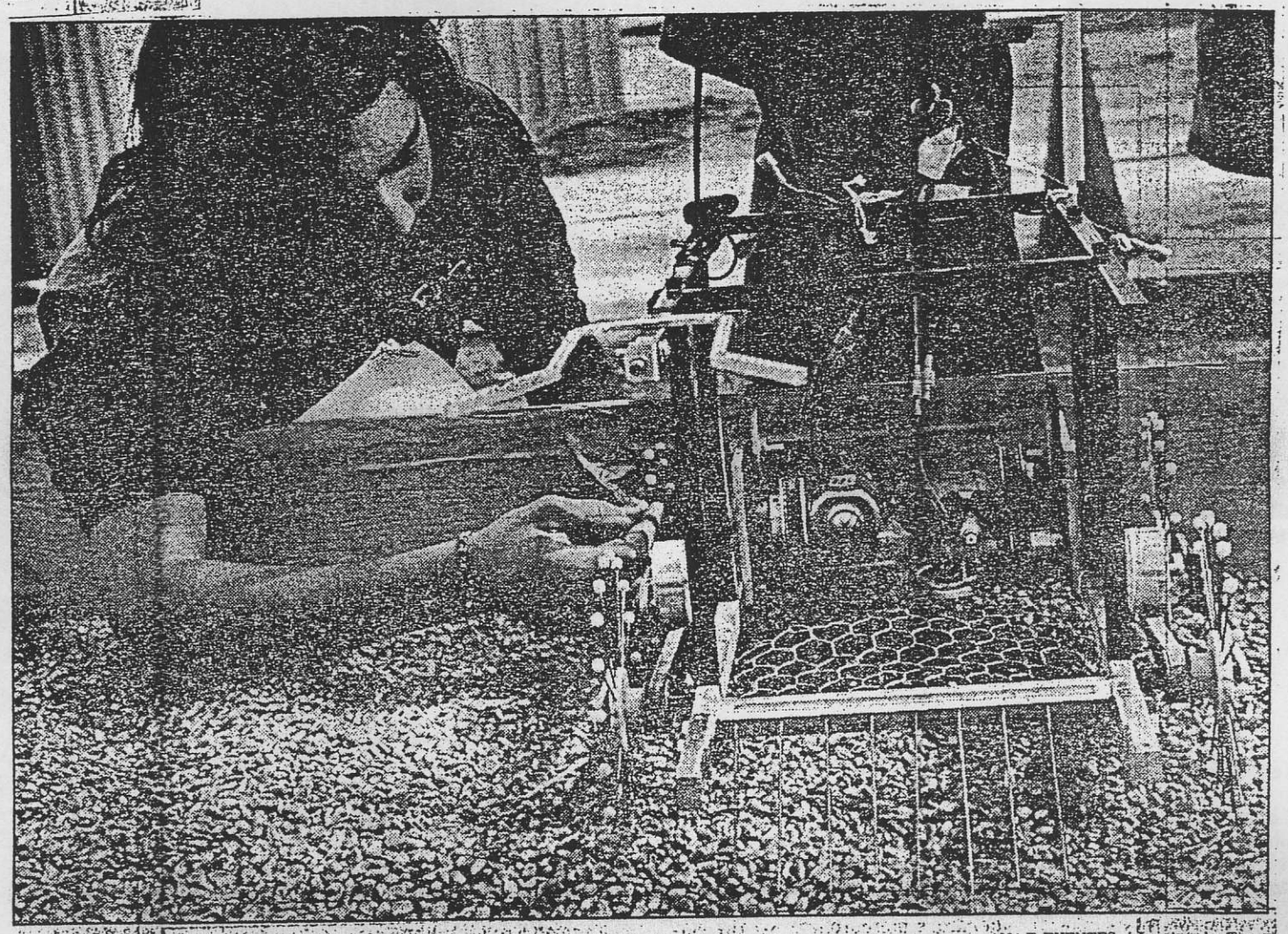
"You represent high tech, and you have to wow the kids and bring them to where they understand and appreciate the challenges of engineering," he said. "They're supposed to come away thinking engineers have as much fun as ball players. We want them to know this is neat stuff."

It is neat stuff, and both Kamen and Flowers hope to reinforce that point when the completed machines are put to the test in the gymnasium at Memorial High School on Feb. 13 and 14, before a panel of judges that will include the President's science adviser, Dr. Allan Bromley.

San Diego County

TUESDAY
FEBRUARY 11, 1992

Los Angeles Times



ANA E. FUENTES / Los Angeles Times

University City High junior Daniel Calabrese examines a robot prototype before testing it on a bed of corn kernels.

Students Design Robot to Win Contest

■ **Science:** University City High students design a tennis ball-snatching robot they hope will grab top honors.

By DAVID SMOLLAR
TIMES STAFF WRITER

What's the best design for a remote-controlled robot to gather tennis balls—while roaming across an arena of inch-deep dried corn kernels—and defend the cache from competing robots that might want to steal the treasure?

For a talented group of 30 University City High School students, the answer lies in a sleek, miniature version of a shopping cart, complete with motors, ball-grabbing extension arms and pencil-thin spoke wheels to churn almost friction-free through the corn.

That's the entry that the students, together with their two engineering mentors from IMED Corp., the school's business partner, will send forth in a first-of-its-kind national competition this week in Manchester, N.H.

The contest is the latest brainchild of engineering professor Woodie Flowers, a specialist on innovation at the Massachusetts Institute of Technology.

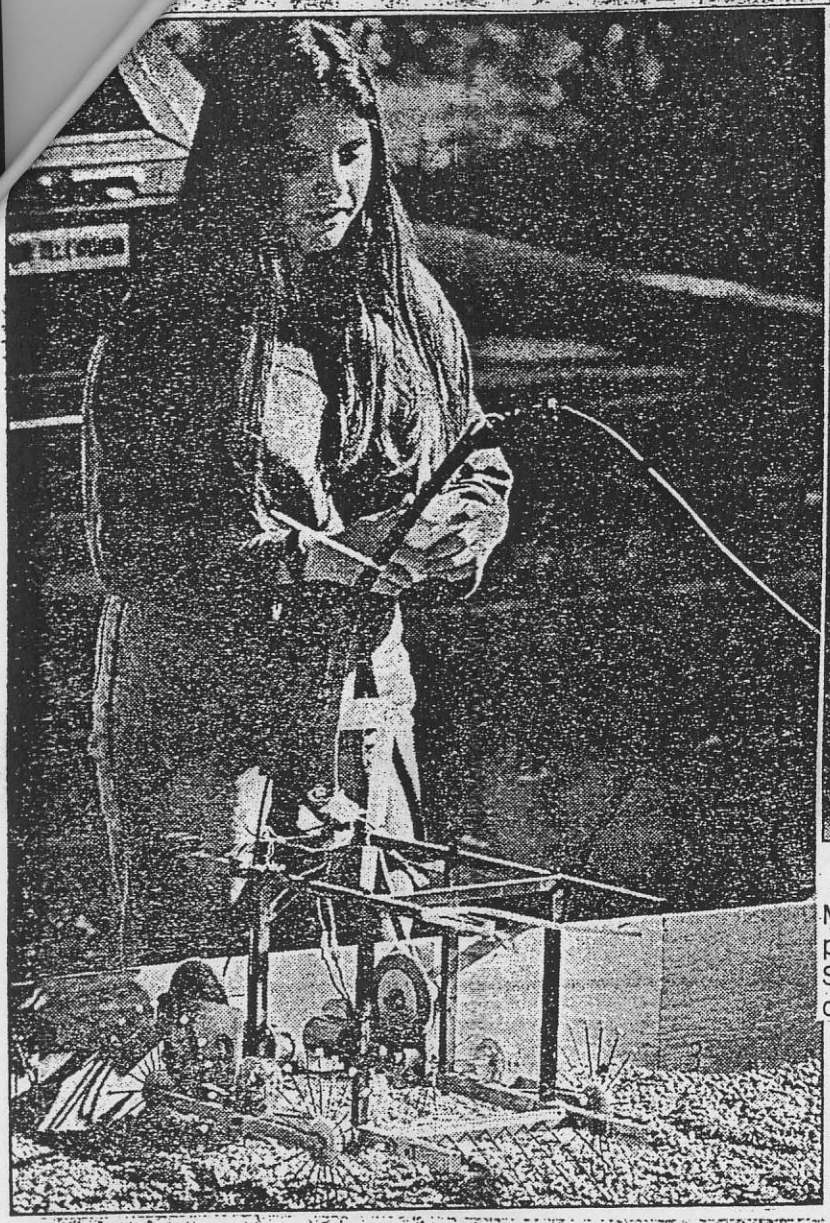
The idea is to promote science and technology careers among American high-school students. Similar contests in Japan draw thousands of spectators to watch teams from every part of that nation vie for honors.

University City High is one of only two West Coast high schools preparing for the inaugural "Maize Craze" competition, sponsored by U.S. First, a nonprofit coalition founded by New Hampshire entrepreneur Dean Kamen to stimulate technology.

Kamen extended an invitation

Please see ROBOT, B4

T: Students Hope Their Entry Will Win Contes



Photos by ANA E. FUENTES / Los Angeles Tim

Michal Weber, left, and Terry Schlidt prepare the University City High School robot for this week's competition in New Hampshire.

Continued from B1

through San Diego-based IMED, a worldwide designer and manufacturer of intravenous drug equipment, because of his longtime connection with the company through various medical inventions.

The IMED-University City team will be up against 27 other high schools linked with mega-sized corporations including AT&T, Boeing, Delco Electronics, IBM, Motorola and Xerox. Several colleges—Harvard and Rensselaer Polytechnic Institute among them—will compete independently.

Students and engineers have been putting in long hours after school and on weekends, brainstorming ideas, learning how hard it is to transform designs into products, and figuring out strategies for garnering a winning number of tennis balls.

Four teams will compete at a time in two-minute competitions, attempting to retrieve 75 green tennis balls worth one point each and piled in five locations on a red tennis balls perched on four corner posts and each worth 15 points.

Each team is limited to a special kit of materials provided by U.S. First as well as $200 in additional parts of its choice that can be purchased from a designated supplier. For example, designated motors are the same ones that power the seats in a Cadillac.

"We've learned how things can go wrong, what's possible and not possible" when you design something, said sophomore Michal Weber, one of four "drivers" who will put the University City robot through its paces in Manchester.

"It's easier to understand something when you build it," added fellow sophomore Eitan Levy. Junior Daniel Calabrese discovered that abstract physics proved useful in making various calculations for the robot, such as the angle to position thin wire strips and make tennis balls "shoot up" into the robot's cage.

IMED engineer John Thompson took charge of sifting student ideas colleague Phil Eggers worked with the teen-agers on strategies for getting the tennis balls. Their main challenge: "Showing the kids the trade-offs, and how best to make them, in carrying out a design with limited resources," Thompson said.

At first, most of the students preferred a robot to capture a maximum number of balls on the ground. But junior Raghu Parthasarathy held out for a more elaborate design to snare balls from the posts.

Only after the group tested numerous prototypes—including a toy Hovercraft and several remote-controlled race-car models—did it settle on a final design closer to Parthasarathy's first idea. The group also agreed to have its robot "run from" rather than "fight" a competitor designed to try to take away its balls.

That's where IMED fabricators like Chuck Botts, Maher Moubayd and Bob Gauthier came in, spending long hours on their own time in both student expectations and c test specifications.

"Our biggest challenge has b to get students to take risks in th strategies," Botts said. He pers ally would have preferred a m radical robot that plants itself one spot and then shoots ou scissors-like arm to snare balls.

"But the kids wanted a vehicl and that's all right. The real pc to this is education—to get th thinking about how science ma the transition from an idea in y head to the physical creation."

As the final prototype ca together last weekend, IMED c ated a corn-filled arena in its b parking lot where Eggers put four student "drivers" through separate strategies for maneuv ing the robot to the four posts.

Stopwatch in hand, Eggers ca fully charted times on various ru The students will select their fi strategy after watching what competition has up its sleeve d ing practice rounds in Manches before the games begin in earr on Thursday.

"You have to be out of your m as an engineer to get involved i contest like this," Eggers s "except if you have a desire

THE MORNING CALL February 13, 1992

Dieruff, Air Products team up for contest

Students vie in engineering competition

By JOE TARR
Of The Morning Call

Although they have spent most of the past six weeks gearing up for a mechanical design competition, none of the 11th-graders from Dieruff High School or the engineers from Air Products & Chemicals Inc. knows if there's even a prize.

"None of us even thought about that until today," said Jill Schnader, one of the four students who traveled to Manchester, N.H., yesterday to compete in the "Maize Craze."

The contest is one way that U.S. First, a national alliance of business, government and education, tries to excite students in math and science. The contest brought high school students together with professional engineers for six weeks to design a remote control cart that will pick up tennis balls, of various point values, in a 16-foot square area covered with whole kernel corn.

But it's not that simple.

The cart had to be designed from a kit provided by U.S. First and a limited number of other materials that could be purchased. The competition consists of elimination rounds pitting four teams against each other. During each round, the students have two minutes to bring the balls back to their home base.

Dieruff High School got involved when a representative from Air Products & Chemicals of Trexlertown approached the Allentown Area School District about the event. The district selected Bill Landis's Advanced Physics I class at Dieruff to participate.

Although the engineers, James Barnett and John Muir, did most of the construction, they followed the students plans closely.

"We gave them all kinds of ideas and they just put them into one big thing," Schnader said Tuesday at Air Products while her team practiced.

Some of those ideas were quite impressive, Barnett said.

"It's really exciting to see all the ideas they came up with. We integrated many ideas that we couldn't have thought of ourselves," Barnett said.

One student drives the cart while another operates a boom on the cart that will knock high-value balls down from posts into a net attached to the top.

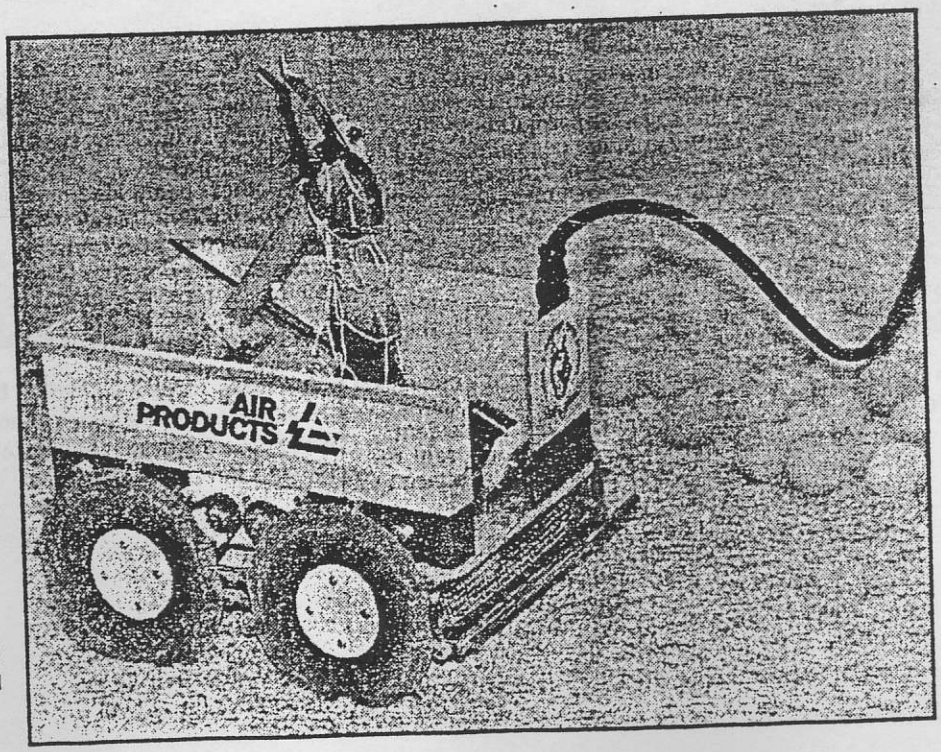
The competition, with technical assistance from places like Harvard University, Boeing Corporation, AT&T and IBM, promises to be tough and everyone's a bit curious to see what the other teams designed.

Charlotte Walker, manager of community relations, said Air Products & Chemicals got involved to promote engineering.

"We hope that they'll come back to where they grew up and they can use their talents here," she said. "We like to get engineers from our own community."

Whether the students involved in this project will do that is uncertain.

THE MORNING CALL
February 13, 1992 (continued)



Above, Dieruff High School juniors Sally Schuster, 16, Jill Schnader, 16, and Bryan Cone, 17, and Air Products engineer John Muir operate a device designed to remove tennis balls from a crib of corn. At right is a closeup of their four-wheel vehicle. The contest was designed to increase students' interest in engineering.

HARRY FISHER
The Morning Call

Wednesday, January 22, 1992 Serving Berlin, Bolton, Boylston, Cli

Nypro, students work

CLINTON HIGH SCHOOL student John Payne holds up a tennis ball at a recent planning meeting at Nypro Inc. in heart of a national competition, which has Clinton students and Nypro teaming up. Across the table from Payne Wayne Paradis and Steve Costa, all of Nypro Inc.

Valley Daily News
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Mike Ullmann
City Editor
872-6600 • 872-6721

Engineering enthusiasm

Lindbergh students hope to win 'Maize Craze'

By MARY SWIFT
Valley Daily News

RENTON – Darryl Judge and Chris Abadilla couldn't hide their enthusiasm as a cakebox-sized lunar rover gained traction and corn kernels flew.

The Lindbergh High School students hope the odd-looking machine will give their team a shot at a national championship.

"We're going to win," Judge announced Thursday, trading a spirited high five with Abadilla. "We're going to thrash 'em, take 'em to pieces."

At stake is a national technology championship in the "Maize Craze," a design competition in which high school students are teamed with professional engineers to build a remote-controlled vehicle that will compete against similar machines in national competition next week.

Object of the Maize Craze, so-called because the machines travel across a surface covered with dried corn, is to gather as many tennis balls as possible into the team's hardest part is going to be getting all the adjustments done back there to make it run perfectly."

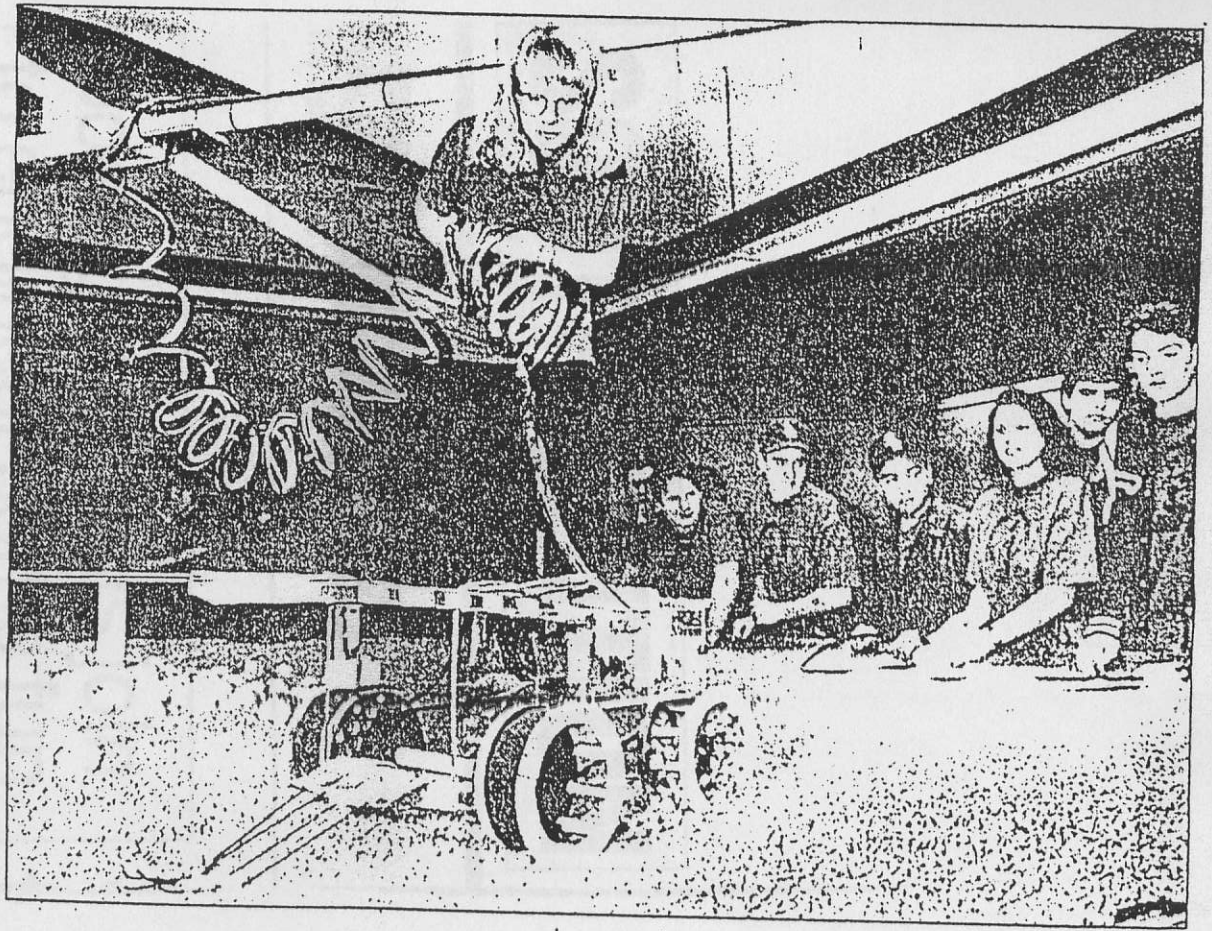
Lindbergh High is the only school in the state chosen for the project, Richter said. He thinks he knows why Lindbergh was chosen.

"Lindbergh has a good name in the science community," Richter said, noting that the school won first place in the state and was 23rd in the nation in a junior engineering contest last year. In addition, a student involved in biology research went to Virginia in another contest last year.

The Boeing Co. was instrumental in the science project, loaning the engineers and picking up the costs of Lindbergh's participation,

"We're going to win. We're going to thrash 'em."

Darryl Judge



Valley Daily News photos by MARCUS R. DONNER

SOUTH EDITION

+ SECTION B
Friday, February 7, 1992
The Seattle Times

Boeing, students join to engineer some fun

Contest challenges Renton teens' creativity

by Keith Ervin
Times South bureau

RENTON — The odd-looking vehicle on the table was more than an odd-looking vehicle.

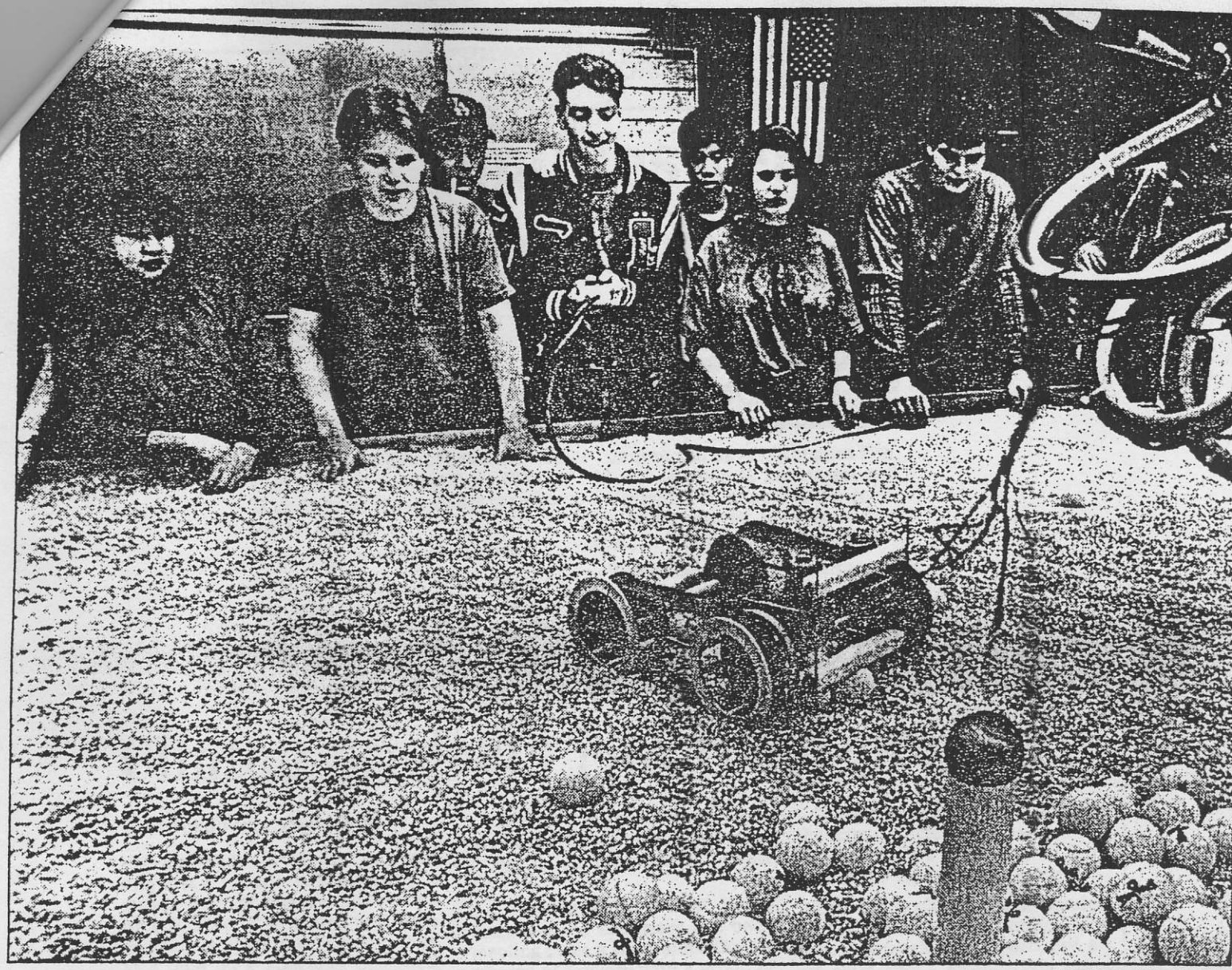
To the students cheering it on, it represented a month of hard work, a chance for national recognition and, for some, new ideas about what they might do the rest of their lives.

To the engineers and teachers among them, it offered an all-too-rare glimpse of the excitement that learning can offer, and of the role that public-private partnerships can play in generating that excitement.

Most immediately, though, the remote-controlled vehicle represented a technical problem.

Now that it had proved its ability to move through a 1½-inch-deep bed of whole-kernel corn feed, how should its two grabbers be mounted so they could pick up 150 tennis balls as quickly as possible?

Please see **VEHICLE** on B 2



Betty Udesen / Seattle Times

Lindbergh High School students maneuver their tennis-ball harvester over a bed of corn kernels during an after-school session.

Students, professionals join to tackle contest

VEHICLE

continued from B 1

How the Lindbergh High School students resolve that problem, with help from their Boeing Co. coaches, could spell success or failure in a national engineering competition next week.

"I wish people who talk about the decline of American education could see this," observed Steve Holt, one of three Boeing engineers who are passing along much of their know-how to more than two dozen high-school physics students.

"This has been one of the biggest kicks of my life," said Boeing engineer Jim Learned. "I'm amazed they're paying me

Since Jan. 6, the aircraft engineers have helped students design an electric device to compete in "Maize Craze," a national technology championship in Manchester, N.H., next Thursday and Friday.

Student contestants will use the machines they have built to collect tennis balls on a large table covered with corn kernels. The competition is sponsored by the nonprofit corporation U.S. FIRST (For the Inspiration and Recognition of Science and Technology) and designed by Massachusetts Institute of Technology Professor Woodie Flowers.

Three students, three engineers and Lindbergh physics teacher Larry Richter will travel to the competition at Boeing expense. Boeing has budgeted $15,000 for travel costs and lost work time.

will compete against students paired with engineers from such corporations and colleges as AT&T, IBM, Motorola and Harvard University. The local partnership is one of only two from the West Coast.

Quoting author Tom Peters' dictum to "try fast, fail fast, change fast," the Boeing engineers encouraged students to come up with "wild and crazy" ideas for the tennis-ball-gathering device.

The ideas were then evaluated in detail by smaller teams that examined ways of propelling the vehicle and picking up tennis balls. Cardboard mockups were built before the students settled on rubber treads for propulsion and wire arms for collection.

Then came the prototype that received its second day of tests yesterday.

Monday, when the student designers plan to unveil the completed device and put it through its paces. But already the effort has paid off. handsomely in its educational value.

"You learn to adapt. If something doesn't work, you try something else," explained senior Casey Tomich, 18, one of the three students elected to travel to New Hampshire.

Several others – including one who had planned to become a psychologist – are now considering careers in engineering or science. "It's fun. Engineering looks different," said Steve Olson, a 16-year-old junior who has abandoned the notion that engineering is boring.

Observed engineer Holt: "It's always been assumed that the way corporations help in the educational process is to give money. Maybe that's not the best

This doubles team will serve robots

By George Snell
Staff Reporter

Today's Focus

CLINTON — Tennis balls.

The most important goal in the project, which involves scientists and engineers from Nypro Inc. and students and faculty from Clinton High School, is the ability to gather tennis balls.

After all, that's how you win.

"We're going to put Clinton on the map," vowed Paul C. Jensen, corporate director of training and development at Nypro.

Jensen will have his chance Feb. 13 and 14 when 40 businesses and universities from across the country will compete in Manchester, N.H., in U.S. First's "Maize Craze."

The contest teams each organization with an adopted high school science class. Together the scien-

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Clinton students join robot project

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tists and students will design, build and test a robotic vehicle using a standard kit of materials supplied by U.S. First. The teams will then compete against one another, four at a time on a specially designed arena. The vehicle that collects the most tennis balls in two minutes is the winner. The contest is called "Maize Craze" because the surface of the arena is covered with an inch of corn.

"This is technology in action," Jensen said yesterday. "This is not a science fair. We have to develop a robot that can collect tennis balls, defend itself against other robots and move along a surface of corn. We want scientists and students to interact with each other. We want the students to look at the scientists and engineers as role models."

That is the goal of U.S. First. Eric C. Yantz, Northeast account manager for Nypro, said the New Hampshire-based organization is a national alliance of business, education, and government, focused on reversing a high school trend of declining interest in science and math.

"The ultimate goal is to let kids see firsthand that science and technology is fun and exciting," Yantz said.

He said a team of eight Nypro scientists and engineers has been meeting twice a week since the beginning of January with a group of high school students and faculty.

"It's amazing to watch these people all sitting at the same table, discussing how to build and operate a robot. I don't know who's more into it — the scientists or the kids," he said.

Peter Marshall, a Nypro vice president, said the competition uses the marketing and excitement of a sporting event to attract students.

"Our society eulogizes pro athletes," Marshall said. "Joe Montana can throw a football and Michael Jordan can shoot hoops. We should play up the lives of Nobel prize winners just like we do pro athletes."

Leo R. Bachant, assistant principal at Clinton High School, said Nypro approached the school about the project between Christmas and New Year's.

"I said yes and got itchy about the possibilities right away," Bachant said. "We tried to open it up to as many students as we could."

He said a physics class headed by teacher Thomas O'Connell was chosen to work with Nypro, but an art class and a graphic-arts class are designing a logo for the robot.

"Super Bowl Sunday is coming up and a lot of people are interested. I know I am. To get an ad on TV during the game costs millions of dollars," Bachant said. "If these companies can do that, why not spend some money on a contest like this promoting science and technology?"

He said the contest, which will be held four days before the New Hampshire presidential primary, may attract some of the Democratic and Republican candidates.

"The more we can do to promote science the better," he said.

Other area teams include the Bose Corp. in Framingham, Digital Equipment Corp. in Maynard, Raytheon Co. in Lexington and Worcester Polytechnic Institute in Worcester.

NEW HAMPSHIRE SUNDAY NEWS, Manchester, N.H. — February 9, 1992

Winnacunnet Among 6 NH Schools To Compete in 'Maize Craze' Event

DURHAM — Now let's see, what would MacGyver do? Somebody hands you a crate of electrical and mechanical odds and ends — including a junked computer printer — and challenges you to build a remote-controlled machine that can collect tennis balls strategically located on a 16-foot by 16-foot playing field two inches deep in dried corn while three opposing teams try to do the same. Hmmm . . .

Word to MacGyver — forget the Swiss Army knife; it's time to call in the cavalry. Or, in this case, the engineers.

True to the spirit of just such a challenge, Hampton's Winnacunnet High School and the University of New Hampshire have joined forces to compete in "Maize Craze." The Feb. 13 and 14 contest, at Memorial High School in Manchester, will pit 28 high school teams from all over the country against each other in a high-visibility contest.

Winnacunnet is one of six New Hampshire schools competing. The other New Hampshire high schools are Memorial, Central and West, all of Manchester, Nashua High School and Keene High School.

Each team has the backing of a major corporation or educational institution, from AT&T to Xerox, from Dartmouth to MIT and Rensselaer to UNH.

Dr. Allan Bromley, science and technology adviser to President Bush, will host an awards banquet during the event, which is based on the design engineering competition made famous by Woodie Flowers, professor of teaching innovation at the Massachusetts Institute of Technology.

Billed as a "national engineering celebration in creative design and school partnering," the contest is sponsored by a Manchester firm called U.S. FIRST (For Inspiration and Recognition of Science and Technology). The not-for-profit corporation was founded by Manchester inventor and entrepreneur Dean Kamen to "excite the next generation about science and technology."

The Winnacunnet team is made up of students in physics teacher Robert Devantery's class. Their UNH backing comes from Gerry Sedor, a retired naval engineer and instructor who, on his way to earning a Ph.D., became "sub-meister" for UNH's two award-winning human-powered submaries. In guiding his young charges through the thinking process that will produce their Maize Craze entry, Sedor is aided by mechanical engineering graduate student Paul Maxted, from Holliston, Mass., mechanical engineering senior Rick Miller, of Dover, and civil engineering senior Chris Dundorf.

The crew is working nights and weekends to come up with a winning competition strategy and vehicle that works. But while th crew focuses on winning, th payoff for Sedor and Devante

— introducing young minds science and engineering by offe ing them a challenge — has a ready begun.

Building Effective Partnerships

A Special Supplement to *Technology & Learning* Sponsored by Apple Computer

Outcomes That Expand Student Learning

Children comprise only about 25 percent of our population, but they represent 100 percent of our future. Helping them to learn more, and to like learning better, is central to a strong system of education. Successful school/business partnerships can have a significant effect on student learning through the following outcomes:

Motivating Students in Science, Mathematics, and Engineering:

According to New Hampshire inventor and entrepreneur Dean Kamen, education isn't suffering as much from a lack of resources and know-how as it is from low prestige and public apathy. He claims that business can best help education by applying sophisticated marketing/public relations techniques to help create a demand for quality education.

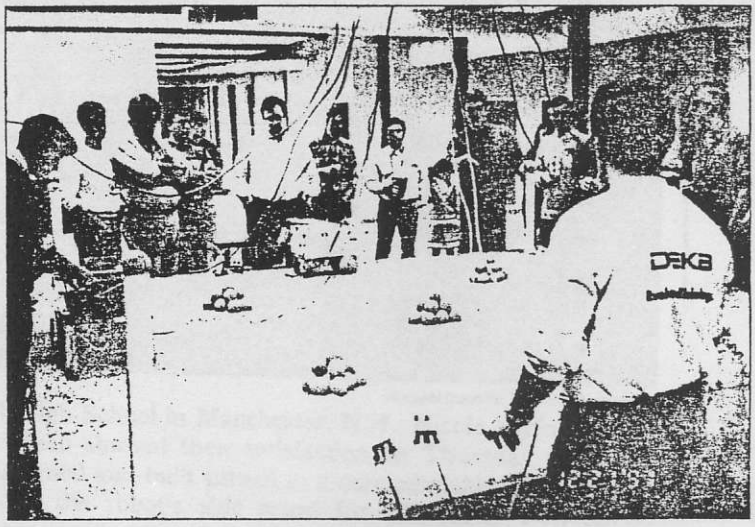
To this end, Kamen has formed a company, U.S. FIRST, dedicated to raising interest and performance in math and science to the same level as our country's interest and performance in professional athletics. The company has developed a series of marketing promotions and events to celebrate and popularize science, math, and technology both inside and outside of the classroom.

Sharon Smith (6th grade), won a three hour helicopter ride through the FIRST Points science and math incentive program.

One such promotion, an incentive program called FIRST Points, awards "stamps" to students for their work in science and mathematics. These "stamps," donated by businesses and distributed by teachers, can be exchanged for prizes at business locations throughout the community. Participating businesses, including M&M/Mars and McDonald's, like the program in part because the FIRST Points stamps serve as a promotional vehicle for each participating company. And educators find that students are responding in positive ways. In fact, the National Science Teachers Association has endorsed the program.

U.S. FIRST also sponsors a FIRST Encounters contest which brings together 40 teams—including representatives from companies such as Motorola, Boeing, and Xerox; various institutions of higher education including Harvard and Rensselaer Polytechnic Institute; and high school science classes—to compete for a national championship in the "sport" of design engineering. The contest is being conducted with all the excitement of a major sporting event, complete with referees, cheering fans and concession stands.

Of course, students benefit from working with the highest-quality professional design engineers. But the companies and institutions of higher education also benefit: Not only are they given the opportunity to influence the career choices of some very capable high school students, but they are also afforded the opportunity of working with young minds that have the potential of bringing new creativity and freshness to design engineering.



Contestants in the FIRST Encounter "Maize Craze" contest design and build machines that collect and defend tennis balls, demonstrating engineering flair.

U.S. FIRST • 340 Commercial Street • Manchester, New Hampshire 03101 • (603) 666-3906 • FAX (603) 624-0573