TKU TEAM WINS TAIWAN ROBO FOOTBALL CHAMPIONSHIP:

Dept. of Electrical Engineering sent a team to participate in the "2004 Taiwan Robo Football Championship" at National Cheng Kong University last week, and won two first prizes in "5 on 5 small robot football game" and two second places in "3 on 3 middle-sized robot football games." There were totally 28 teams from a dozen of universities around Taiwan leading robot players of different sizes and designs to this championship.

There were two small-sized robot games, "FIRA 3 on 3" and "RoboCup 5 on 5." TKU team won for the fifth time in the 5 on 5 tournament. The leader of the TKU team, Wang Wei-wen, a second year graduate student, explained that the emphasis of the design of their robots was on the visual system—prior to strategy and hardware. Without getting clear image of the surrounding, the robot could not respond correctively to attack and defend. Though the small-sized robot, with a triangular structure of three wheels, was a product of only two-week's labors, it was a result of long-term accumulation of experiences.

The game of simulation was judged by the integrity of strategy. With a sum of seven participating teams, it was the most competitive tournament. TKU team leader, T'ang Yu-chun explained that this game was comparatively elementary and simple, since it was played on computer simulation. "With repetitive experiments and the experience of World Cup Championship two weeks ago, our robot players are faster and more successful in strategy and mobility control" T'ang indicated. A team member, Hsu Cheng-chung added that "simulation game aims at ploy and the game is evaluated by the success of strategies."

RoboCup middle-sized robot football game was played one on one. The characteristic of our robot player was also singular in the visual

system—an individual visual apparatus with the size of a Brown Coffee can, a convex mirror eye to reflex image to the main system. Team leader, Huang K'ai-hsiang, a first year graduate student, explained that the visual field caught by the visual system was spherical, so the image had to be converted through software. The robot player was affixed to a notebook. With the CCD to catch the image to be analyzed strategically by the computer, the robot play could maneuver according to the ploy. Different from the traditional middle-size robot player, which depended on the camera set in the center of the court to catch images, the TKU robot player carried an individual visual system. Adding this to the ploy through the notebook, the robot player looked like a real active football player.

With two wheel-feet and two supporting wheels, the TKU middle-size robot player shaped like a vegetable basket. Team leader, Huang K'ai-hsiang nicknamed it as "A-Tsai" (vegetable). Compared with the sprayer-shaped robot players of the other teams, our robot was lighter, faster, and more dexterous. It won the second place prize at its first shot.