50FJ

✵ Banque filière PT ✵

Epreuve de Langue Vivante I-A

Durée 3 h

Les candidats doivent obligatoirement traiter le sujet correspondant à la langue qu'ils ont choisie au moment de l'inscription.

Pour cette épreuve, l'usage des machines (calculatrices, traductrices,...) et de dictionnaires est interdit.

Tournez la page S.V.P

ANGLAIS

Lire le texte suivant :

Radio Transmitters Follow the Bouncing Ball

As with many soccer fans in Germany, it's probably best not to remind Hanno Reinert about the 1966 World Cup. « All Germans recall the Wembley goal, » he said in a voice tinged with bitterness rather than nostalgia.

England won that year's final 4-2 over West Germany in overtime at Wembley Stadium in London. Even after 36 years, there is still debate about the goal that put England ahead for good. (...)

This year's World Cup in South Korea and Japan set off similar arguments, particularly over calls by referees that sent Italy's team home early. It also finished with a defeat for Germany in the final.

Rather than just complain about the unfairness of it all, Mr Reinert is proposing to replace human eyes with electronic signals to judge goals and offside plays in soccer. The system, being developed by a German company, Cairos Technologies, should also be able to generate data for analysing players' performances, filling the dead air during television broadcasts with even more statistics, and to ensure that robot cameras keep their lenses on the ball. (...)

Scientists and engineers at the Fraunhofer Institute for Integrated Circuits in Erlangen, Germany, which was contracted to design the system, immediately ruled out tracking the ball and the players with transponder chips like those used to record the times of marathon runners. Such chips receive a low-power radio signal and transmit an identifying electronic signal in return.

While transponders are suitable for tracking the movements of relatively slow-moving objects such as marathon runners, their return signal rate is too low for keeping tabs on fast-moving, high-flying soccer balls.

Global Positioning System technology (...) was briefly considered. But René Dünkler, an engineer and technical marketing representative at Fraunhofer, said that such a system would fail when most needed.

"If the ball is under the goalkeeper, you cannot use G.P.S. because you do not have a line of sight to the navigation satellites," he said.

The system that the institute eventually developed relies on tiny microwave radio transmitters carrying equally small, rechargeable batteries that are built into the players' shin* pads and the ball. Up to 10 receiving antennas, some at field level and others atop towers that illuminate the field, create a virtual three-dimensional grid in the stadium.

A computer figures out the location of the ball and the players by analyzing the delays between when the identification signals leave their transmitters - at a rate of up to 2000 times a second - and when they reach each of the antennas.

When the computer detects a goal or offside play, a separate wireless system can send the news to wristwatch-style receivers worn by the referees on the field. (...)

The system's ability to record the activity of every player, Mr Reinert believes, may ultimately be as big an attraction as its ability to referee. (...)

One unresolved issue is where the transmitter will be placed within the soccer ball. The current test system uses a nonregulation foam ball. Mr Reinert said that Cairos was working with a ball manufacturer to find a way to suspend a transmitter in the center of a conventional inflated ball. The company is also considering embedding two or more transmitters just beneath the ball's outer covering.

Ian AUSTEN, *The New York Times* (5 Dec 2002)

*NOTE : *shin* = tibia

1. VERSION (10 points)

Traduire de « While transponders are suitable... » à « receivers worn by the referees on the field. » (en gras dans le texte)

2. QUESTIONS (répondre séparément aux deux questions et respecter le nombre de mots demandé).

a) What are the advantages of this newly-developed system?
(80 à 100 mots - 4 points)

b) Sport and technology don't mix. Discuss. (200 à 250 mots - 6 points)