

## Contact Mat Monitoring System for the University of Sunderland

### Background

The Sports and Exercise Sciences Department of the University of Sunderland required an electronic monitoring system to make automatic time measurements as an aid to research into a person's speed of reaction and transit time in running from one point to another.

The subject runs from a 'home' contact mat to one of three possible remote mats (chosen at random by the operator) on seeing an illuminated LED at the chosen remote mat, and then returns to the home mat.

The specification was for a system comprising the four contact mats, an operator console (with a select key for each of the three remote mats) and a remote unit, housing the LED, connected to each of the three remote mats.

The system was required to display, to an accuracy of 10ms (1) the time from the illumination of the remote LED to the subject stepping off the home mat (2) the time from that instant to the closing of the contact at the remote mat and (3) the time from then till the closing of the home mat contact on the subject's return.

### Project details

Timestar successfully bid, on a fixed price basis, to design and supply the system as specified.

The system supplied has both internal rechargeable batteries and a mains input, and is designed for easy assembly and disassembly. The contact mats are easily unplugged from their local electronic units and a standard ethernet (Cat 5e) cable interconnects the remote units back to the home unit in a daisy chained configuration.

Although only 3 remote mats were required initially, the design allowed for a possible future upgrade of up to 16 mats.



Figure 1: Young Caribbean footballers using the system on a visit to the University's Sports Science Centre

### Success in service

The system has proved extremely reliable in service and has been used extensively for student research work evaluating footballer reaction times, outreach work with local schools and colleges to assess adolescent fitness levels, and teaching undergraduate students in relation to neuromuscular activity.