

SOLUTION NOTES

Additional Topics 2001 Paper 7 Question 14 (AH)

Active Badge

GPS, Active Bat

- (a) The Active Badge is based on infra-red. Infra-red does not go through walls hence if the technology is used for room-area location it works well. If the infra-red transmissions are diffuse there is a good chance they will be received, occasionally they will be missed, and there will hardly be any false positives.
- (b) GPS gives an accuracy of about 15 meters 95% giving an accuracy of 10 cm 95% providing there is line of sight between transmitters and receivers. Erroneous readings only occur under serious error conditions or if there are bugs in the implementation.
- (c) The Active Badge can be used to locate people and equipment in offices and buildings. As there are few inherent false positives the only effect on the end user is where the badge is obscured or the transmissions are not received. This may mean there is no up to date location information. Hence care has to be taken with applications that assume up to date sightings, particularly where this requirement is extended to sightings of multiple badges at once.
- (d) Both GPS and Active Bat can be used for navigation. The accuracy of GPS is such that for car navigation for example it is not quite possible to have correct immediate updates at road junctions. Active Bat accuracy is such that it is possible to have in-building navigation which is presented to the user in real-time.