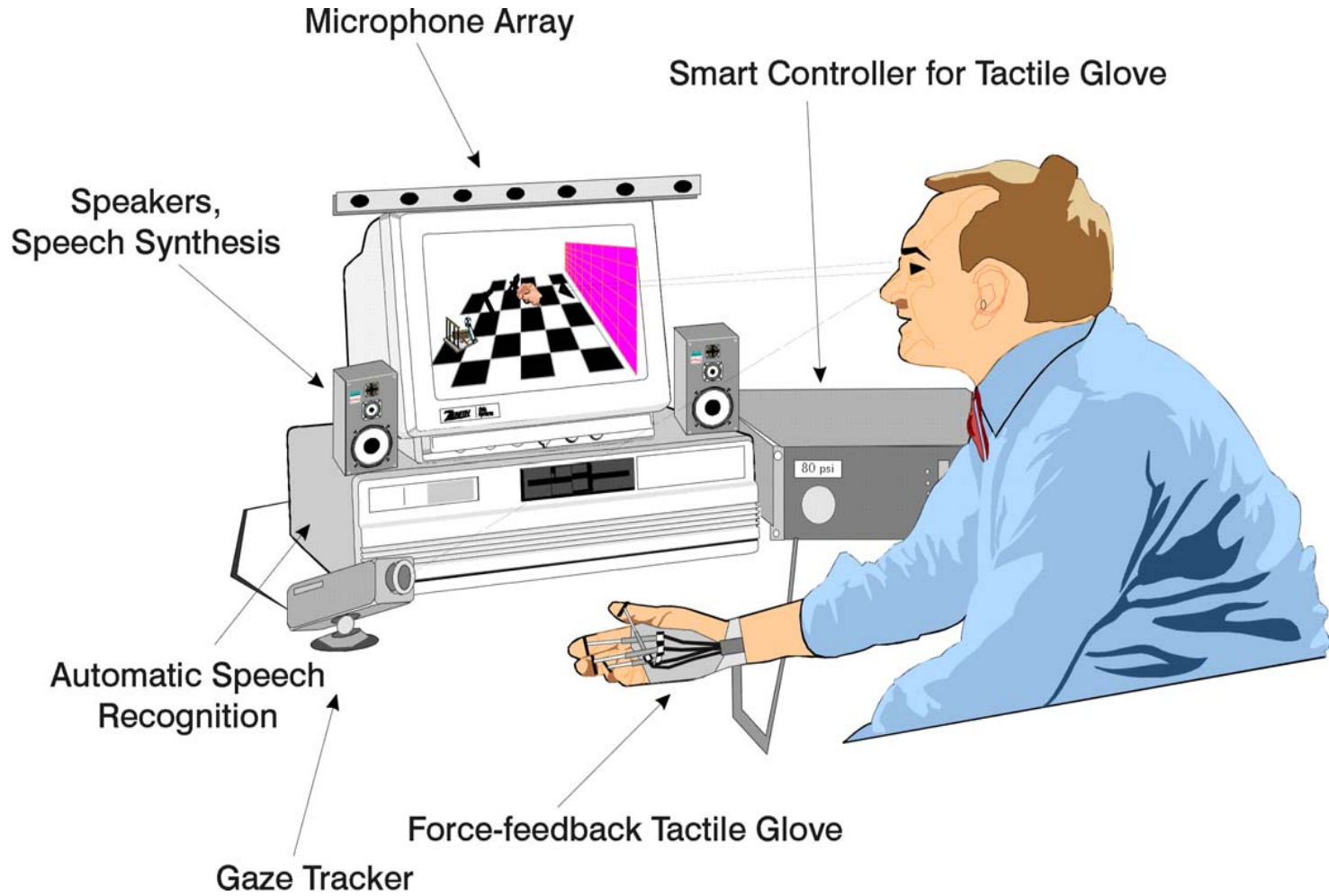
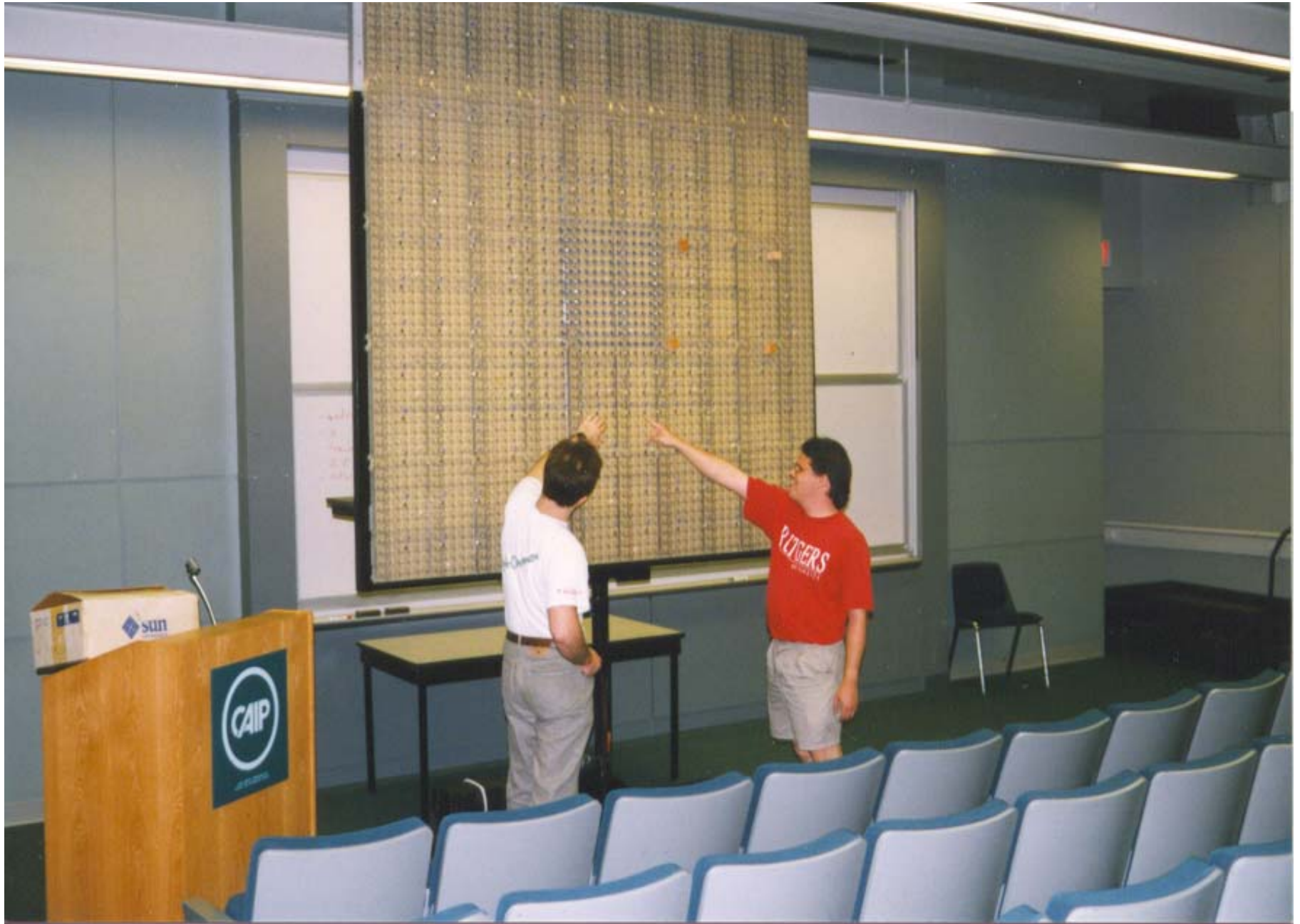


Multimodal Human-Machine Interface

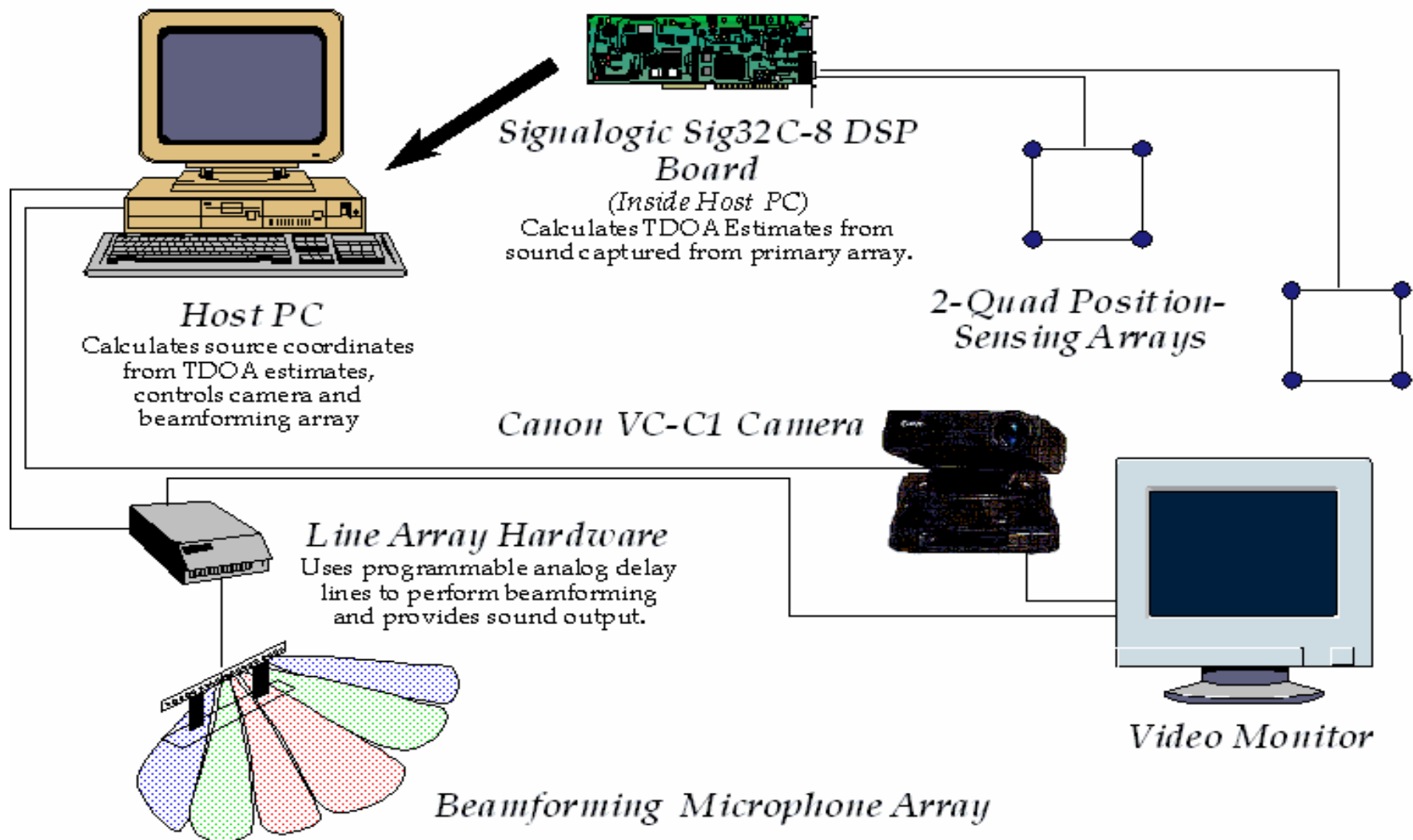




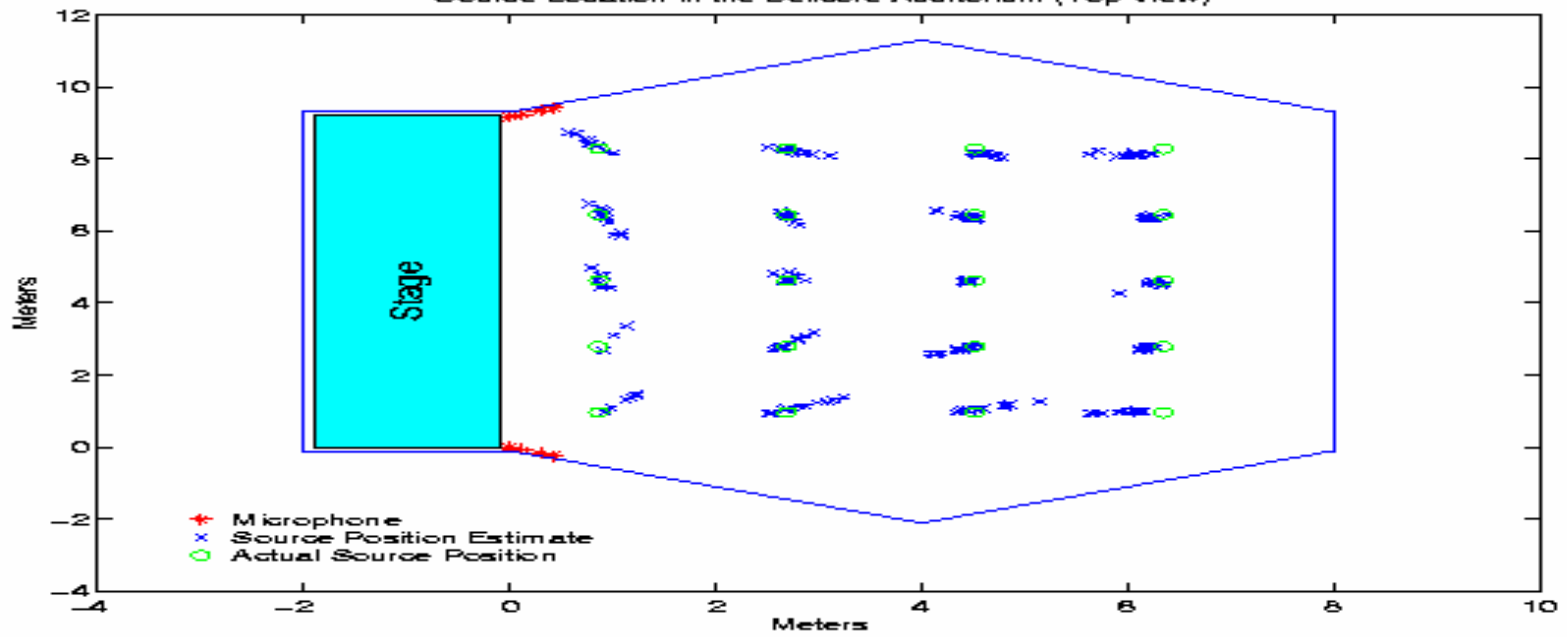




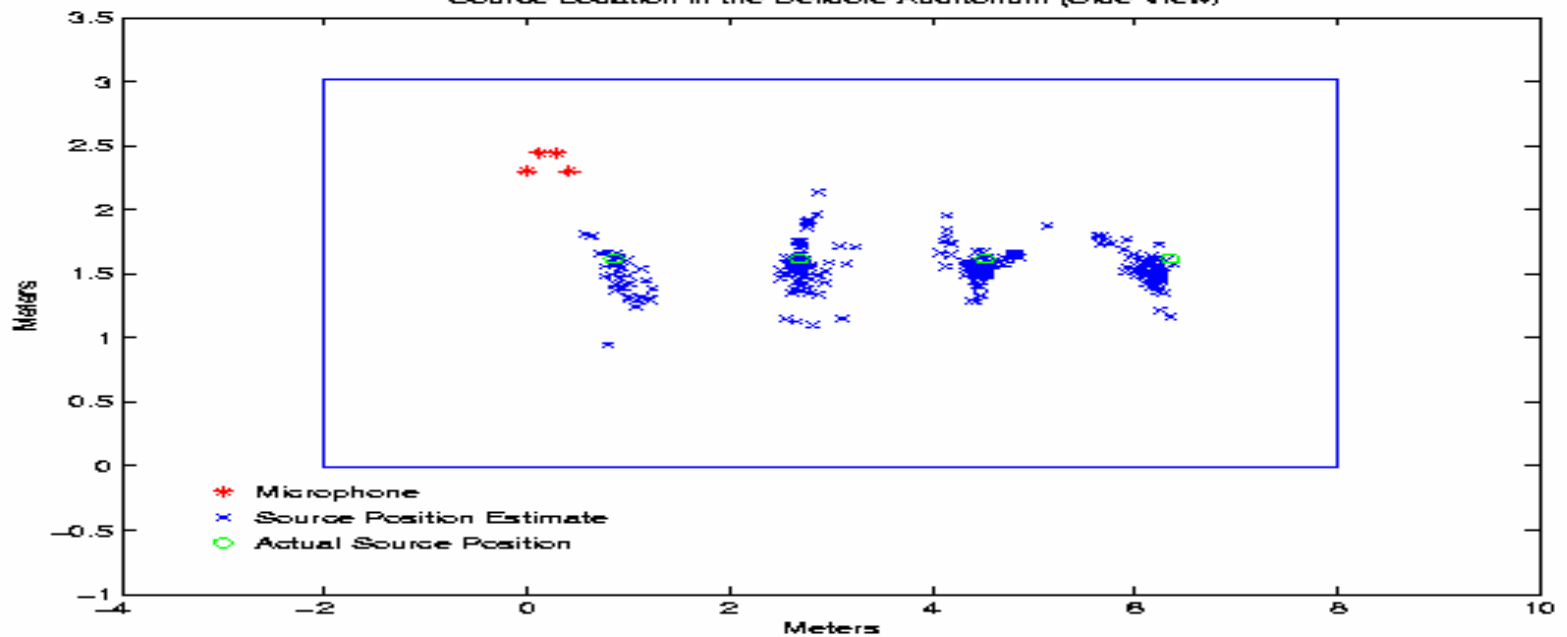
The Source Location System



Source Location in the Bellcore Auditorium (Top View)



Source Location in the Bellcore Auditorium (Side View)



Combined Image and Acoustic Source Location Experimental Setup

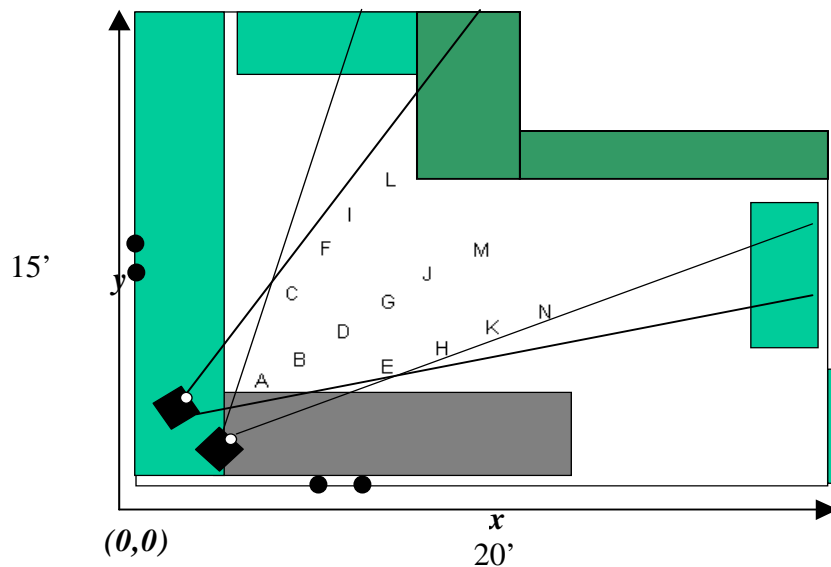


Figure 6.1 Videoconferencing Room 729 for experiments combining acoustic and image location

Position	X (inches)	Y (inches)
A	52.5	53.5
B	64	62
C	62	89.5
D	77.5	74
E	91	59
F	72.5	108
G	91	86
H	107.5	67
I	81	122.5
J	104	98
K	123	75.5
L	92.5	137.5
M	119	108
N	139	82

Table 6.1 Room 729 Positions

Location Enhanced Positions Estimates

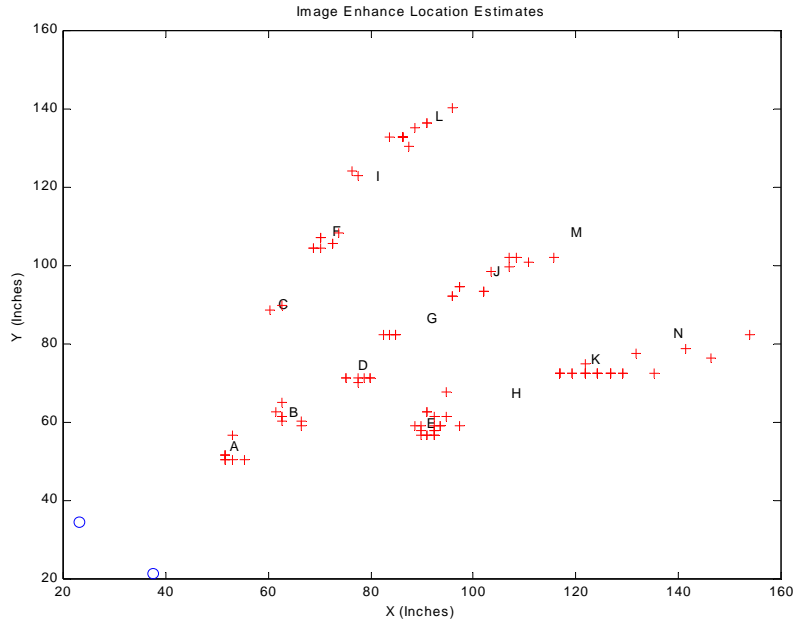
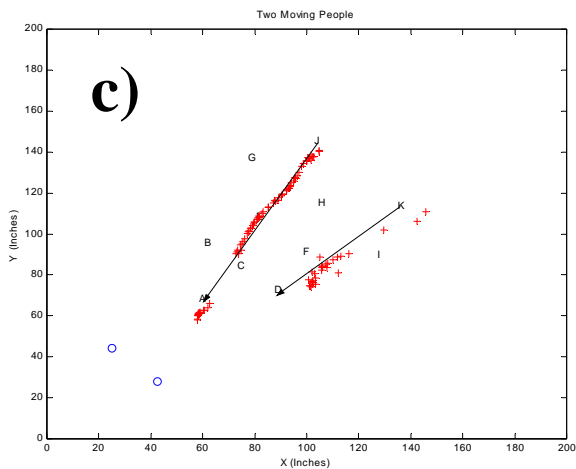
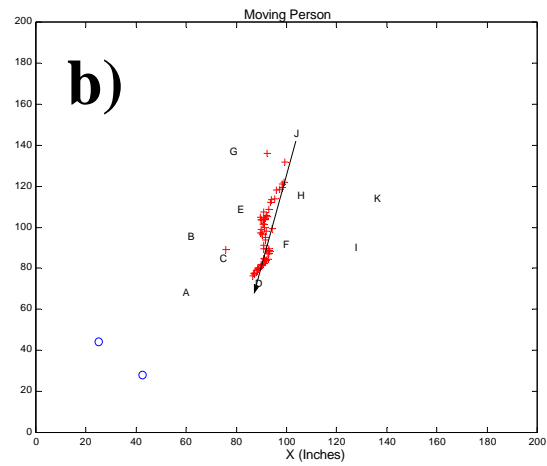
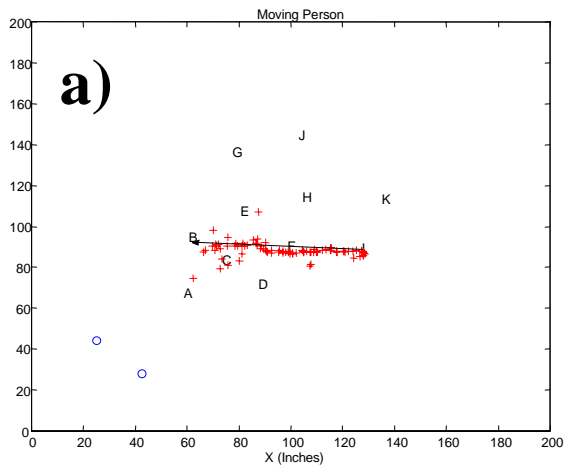


Figure 9 Acoustic estimates improved using image estimates

Position	Converging Frames (compared w table 6.2)	Average Accuracy (Inches)
A	10/11	4.7/7.4
B	16/9	5.2/42.4
C	12/12	5.5/9.8
D	22/12	5.2/14.9
E	22/19	5.5/43.2
F	14/12	8.8/24.3
G	13/12	10.8/27.7
H	19/12	12.6/16.6
I	8/10	9.8/42.7
J	18/14	12.1/56.3
K	28/18	7.3/19.5
L	12/14	12.9/15.0
M	19/13	14.2/24.9
N	23/11	11.4/18.1

**Table 9.1 Acoustic source location estimates improved using image estimates
COMBINED/ACOUSTIC**

Moving Target Location Estimates



- Moving Target Location Estimates:
- (a) Single talker Moving from I-B
 - (b) Person Moving from J to D
 - (c) Two talkers J-A and K-D

