

9

any wireless signal source, including that derived from a conventional remote microphone not equipped with the active range-finding capabilities of the invention. Indeed, the location-finding aspects of the invention made possible through the discrimination of signals received by way of multiple antennas may be used in applications not employing a camera, for example, in monitoring the whereabouts of children, pets, or important or valuable objects equipped with a wireless transmitter.

What is claimed is:

1. Picture and sound recording apparatus coupled to a motorized mount, comprising:

(a) a camera, including:

a transmitter for transmitting a ranging signal,
 a receiver for receiving the ranging signal,
 a comparator for comparing the ranging signal as transmitted to the ranging signal as received to determine distance as a function of time-of-flight, auto-focussing image-gathering circuitry controllable according to the determined distance,
 circuitry for receiving and demodulating an audio signal, and
 recording circuitry for recording the gathered image and the audio signal;

(b) a remote unit, including:

a microphone for detecting the audio signal,
 a radio-frequency transmitter for transmitting an RF carrier modulated with the audio signal to the camera for demodulation and recording, and

a transponder for receiving the ranging signal from the camera and relaying the signal back to the camera on the same RF carrier as that used to transmit the audio signal; and

wherein the camera further includes one or more antennas for receiving the RF carrier from the remote unit, and discrimination electronics operative to physically move the camera using the mount so as to track the remote unit.

2. The picture and sound recording apparatus of claim 1, wherein the ranging signal transmitted by the camera is an acoustic signal.

3. The picture and sound recording apparatus of claim 1, wherein at least the audio information is frequency modulated onto the RF carrier.

4. The picture and sound recording apparatus of claim 3, wherein the microphone used for detecting the audio signal is also used to detect the acoustic ranging signal.

10

5. The picture and sound recording apparatus of claim 1, the camera further including a docking station to physically receive the remote unit, the docking station including contacts between the camera and remote unit establishing a hardwired electrical path between the microphone and the circuitry for recording the audio signal.

6. The picture and sound recording apparatus of claim 1, further including a plurality of remote units, and wherein the camera communicates with only one of the units on a selective basis.

7. The apparatus of claim 6, wherein each remote unit transmits a signal to the camera to assist the camera in selecting that remote unit.

8. The picture and sound recording apparatus of claim 7, wherein the signal used to assist the camera in selecting the remote unit is an optical signal.

9. The picture and sound recording apparatus of claim 1, wherein the camera is a video camera.

10. The picture and sound recording apparatus of claim 9, wherein the video camera is a camcorder.

11. The apparatus of claim 1, including two antennas on either side of the camera to effectuate a camera pan function.

12. The apparatus of claim 11, further including at least one antenna above or below the camera to effectuate a camera tilt function.

13. A distance measurement instrument, comprising:

(a) a first unit, including:

an acoustic transducer transmitting a ranging signal,
 an RF receiver and demodulator to recover a returned version of the ranging signal, and
 a comparator for comparing the ranging signal as transmitted to the returned version of the ranging signal to determine distance as a function of time-of-flight; and

(b) a second unit operative to receive the ranging signal and modulate the ranging signal on an RF carrier for reception of the RF receiver of the first unit.

14. The distance measurement instrument of claim 13, wherein the second unit further includes means for detecting and modulating an locally detected audio signal onto the RF carrier, and wherein the first unit includes a demodulator for demodulating the audio signal.

15. The distance measurement of claim 1, wherein the first instrument further includes a display indicative of the determined distance.

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