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(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0193130 A1**
Yang et al. (43) **Pub. Date: Dec. 19, 2002**(54) **NOISE SUPPRESSION FOR A WIRELESS COMMUNICATION DEVICE****Publication Classification**(75) Inventors: **Feng Yang**, Plano, TX (US); **Yen-Son Paul Huang**, Saratoga, CA (US)(51) **Int. Cl.⁷** **H04Q 7/00**
(52) **U.S. Cl.** **455/501; 370/331; 455/67.3; 455/90**

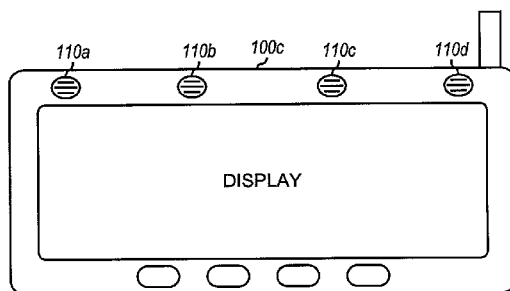
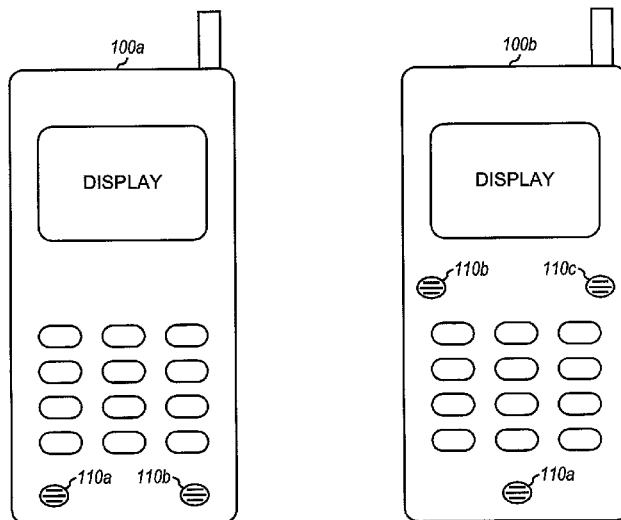
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Palo Alto, CA 94306 (US)(73) Assignee: **ForteMedia, Inc.**, Campbell, CA(21) Appl. No.: **10/076,201**(22) Filed: **Feb. 12, 2002****Related U.S. Application Data**

(60) Provisional application No. 60/268,403, filed on Feb. 12, 2001.

(57) **ABSTRACT**

Techniques to suppress noise from a signal comprised of speech plus noise. In accordance with aspects of the invention, two or more signal detectors (e.g., microphones) are used to detect respective signals having speech and noise components, with the magnitude of each component being dependent on various factors such as the distance between the speech source and the microphone. Signal processing is then used to process the detected signals to generate the desired output signal having predominantly speech with a large portion of the noise removed. The techniques described herein may be advantageously used for both near-field and far-field applications, and may be implemented in various mobile communication devices such as cellular phones.



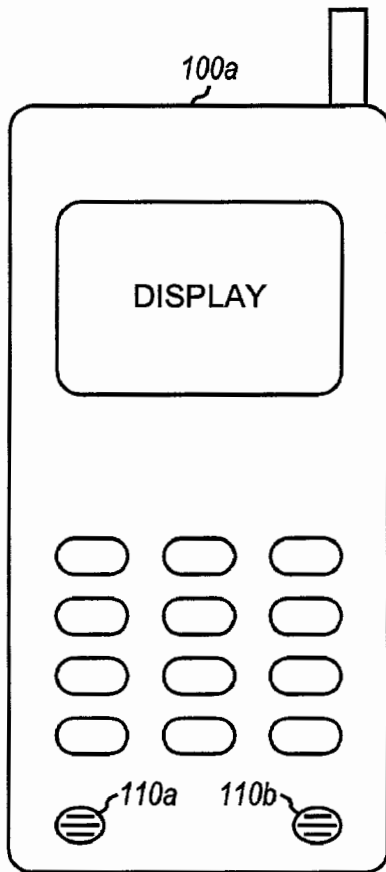


FIG. 1A

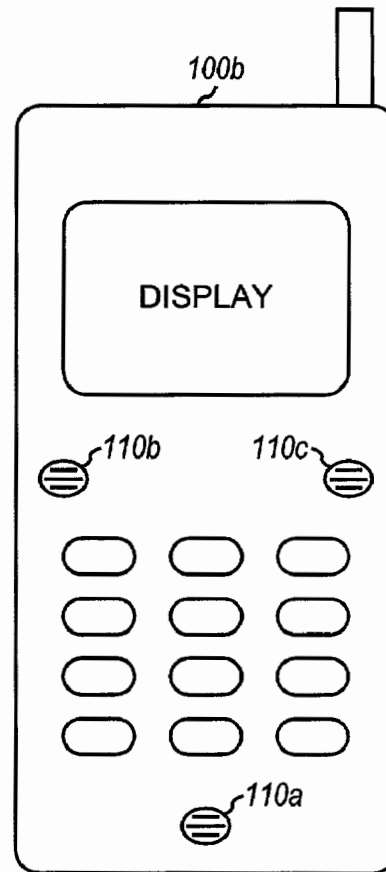


FIG. 1B

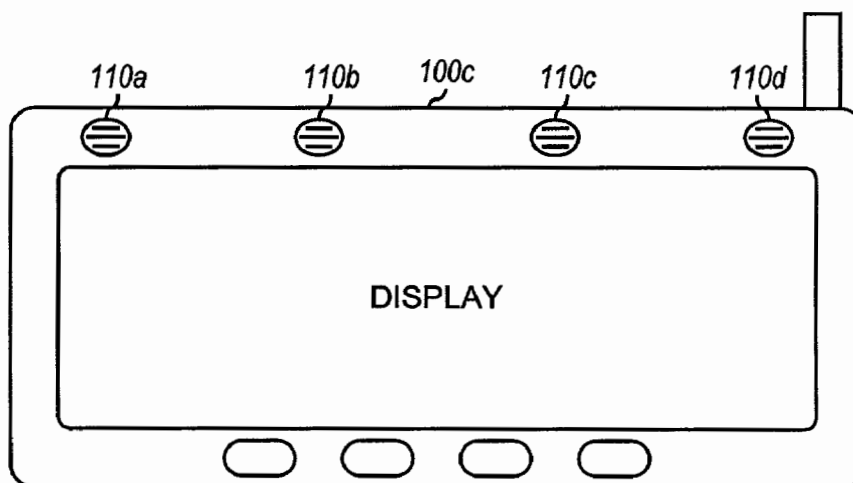


FIG. 1C

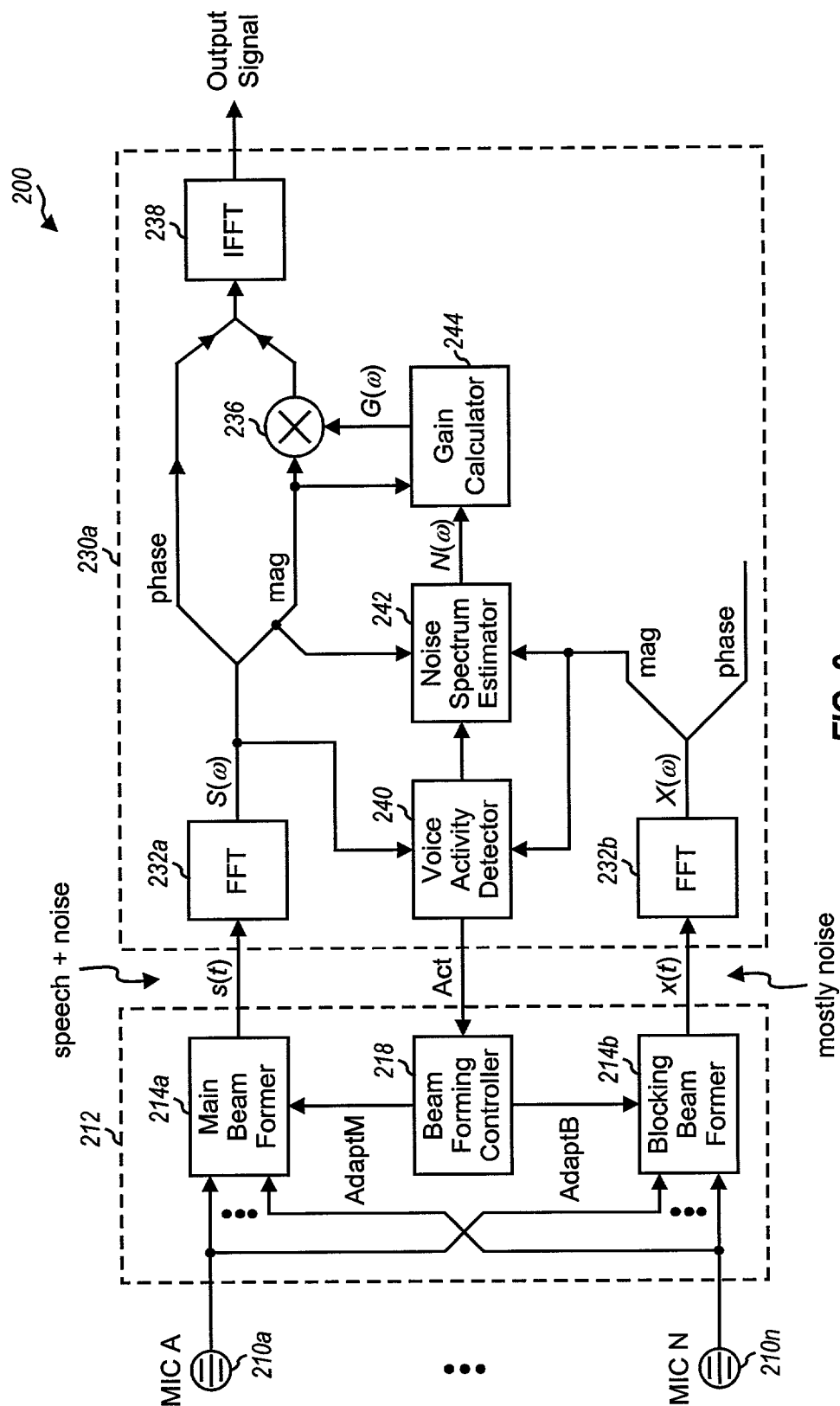


FIG. 2

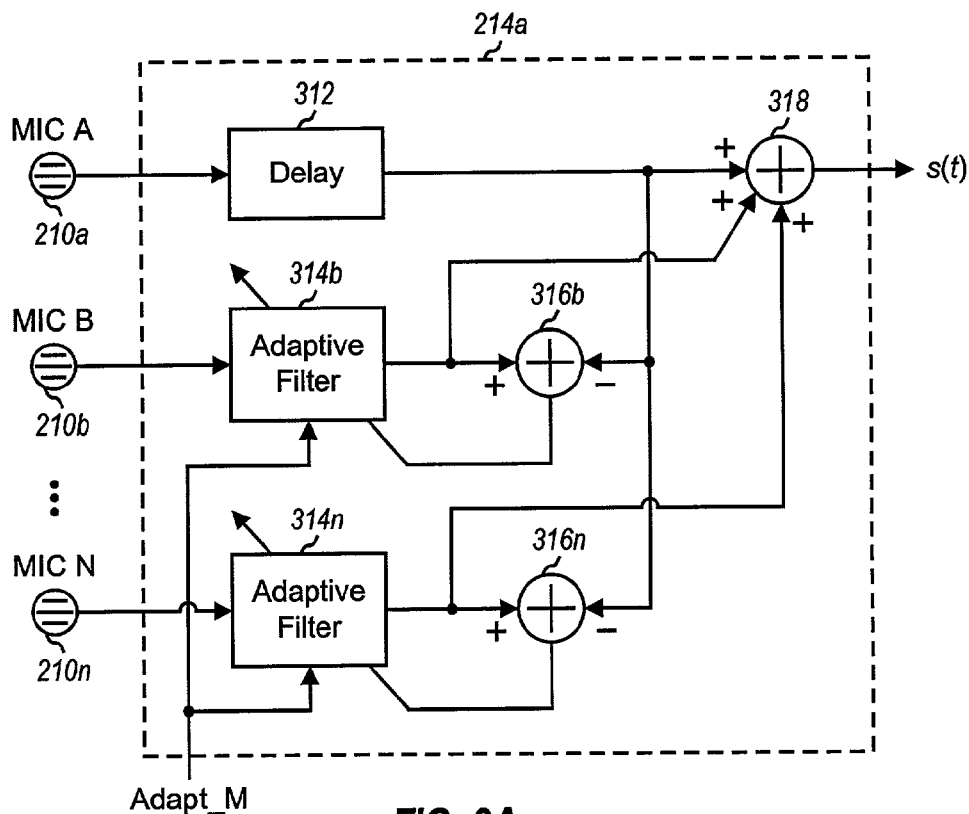


FIG. 3A

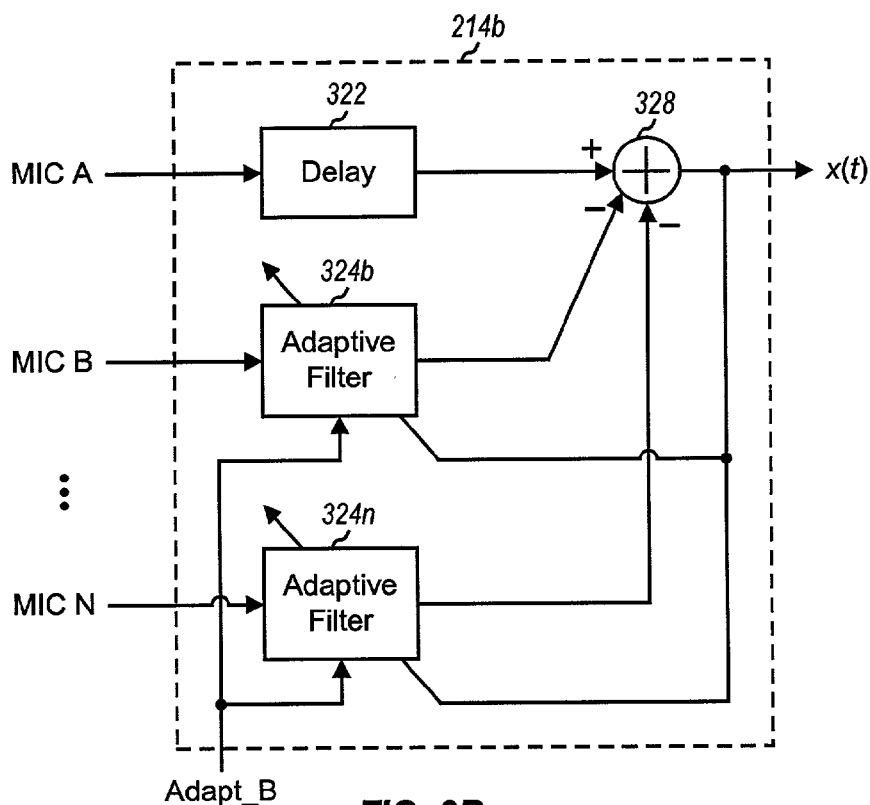


FIG. 3B

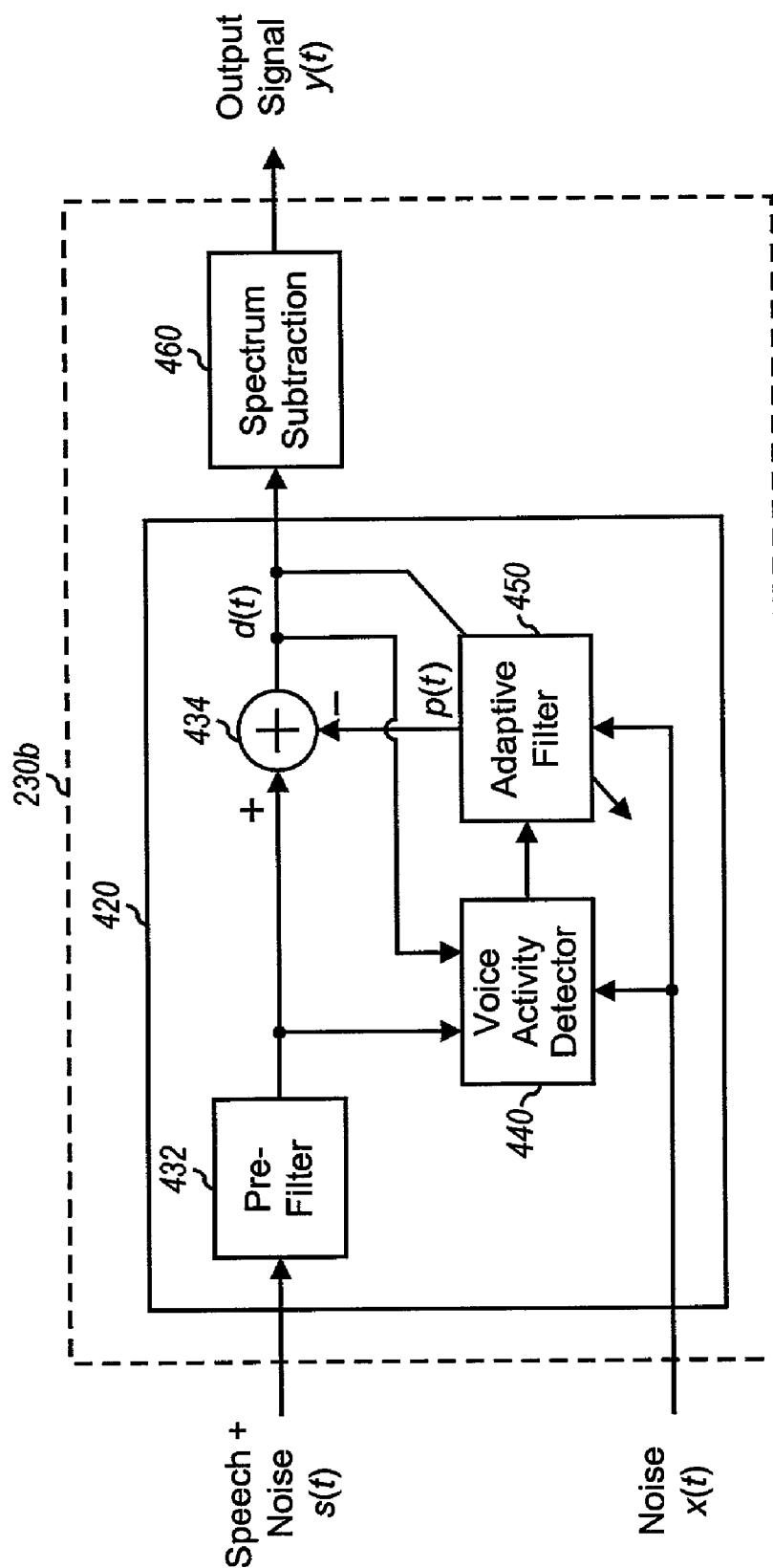


FIG. 4

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