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**Tong et al.**

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(54) **MIMO COMMUNICATIONS**

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(51) **Int. Cl.**  
**H04B 7/00** (2006.01)

(52) **U.S. Cl.** ..... **455/101**; 455/69; 455/561; 455/562.1; 375/349

(58) **Field of Classification Search** ..... 455/562.1, 455/101, 70, 103; 370/334; 375/349, 299  
See application file for complete search history.

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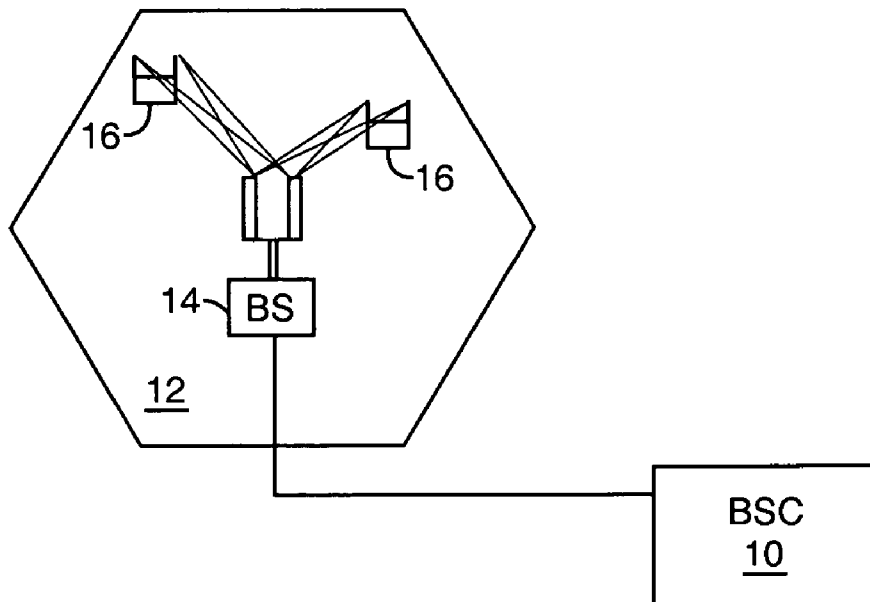
*Assistant Examiner*—Brandon J. Miller

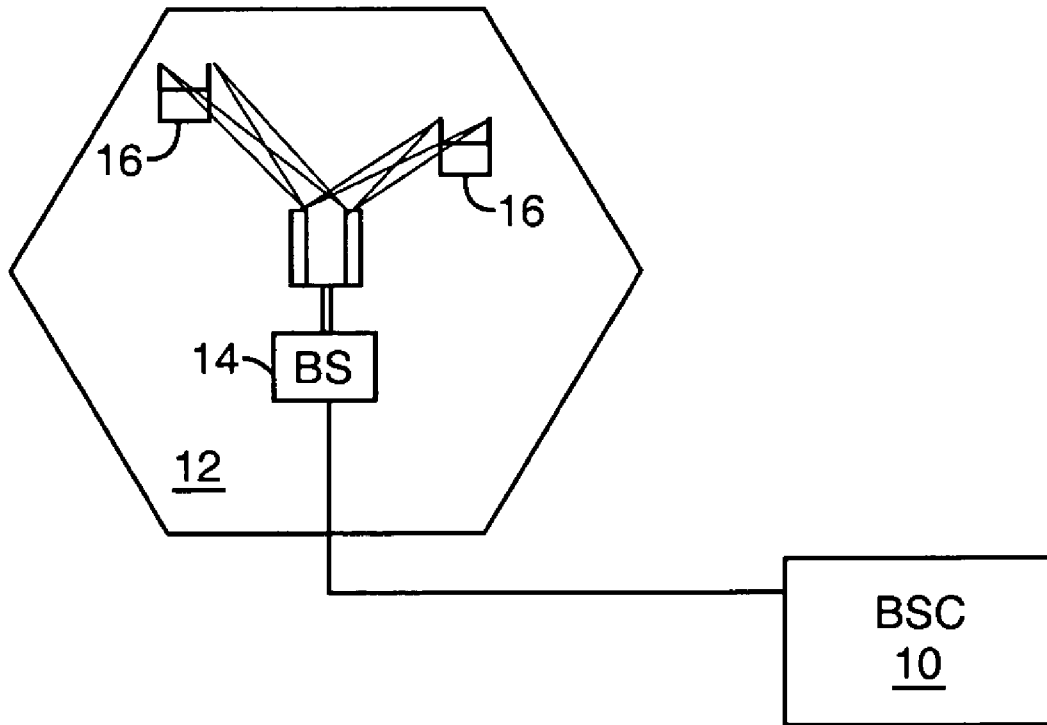
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(57) **ABSTRACT**

The present invention allows a wireless communication system, such as a base station, to select N antennas from an associated group of M antennas for transmitting multiple streams of data to a given user. Based on the channel conditions between the M antennas of the wireless communication system and the multiple antennas at the receiver, the N antennas to use for transmission are selected to enhance channel capacity, signal-to-noise ratios, or a combination thereof. The channel conditions are measured at the receiver, and may be sent back to the wireless communication system for processing or may be processed at the receiver, wherein instructions are transmitted back to the wireless communication system to control antenna selection.

**36 Claims, 9 Drawing Sheets**





**FIG. 1**

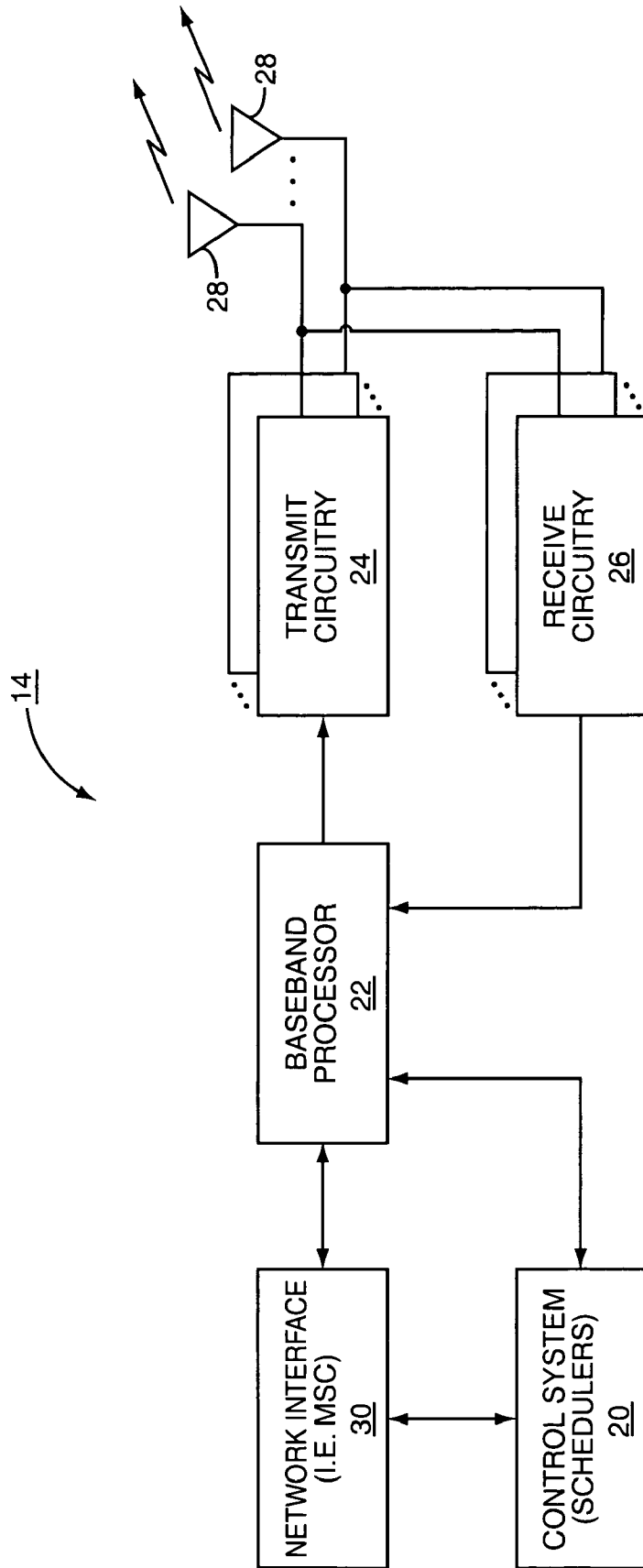


FIG. 2

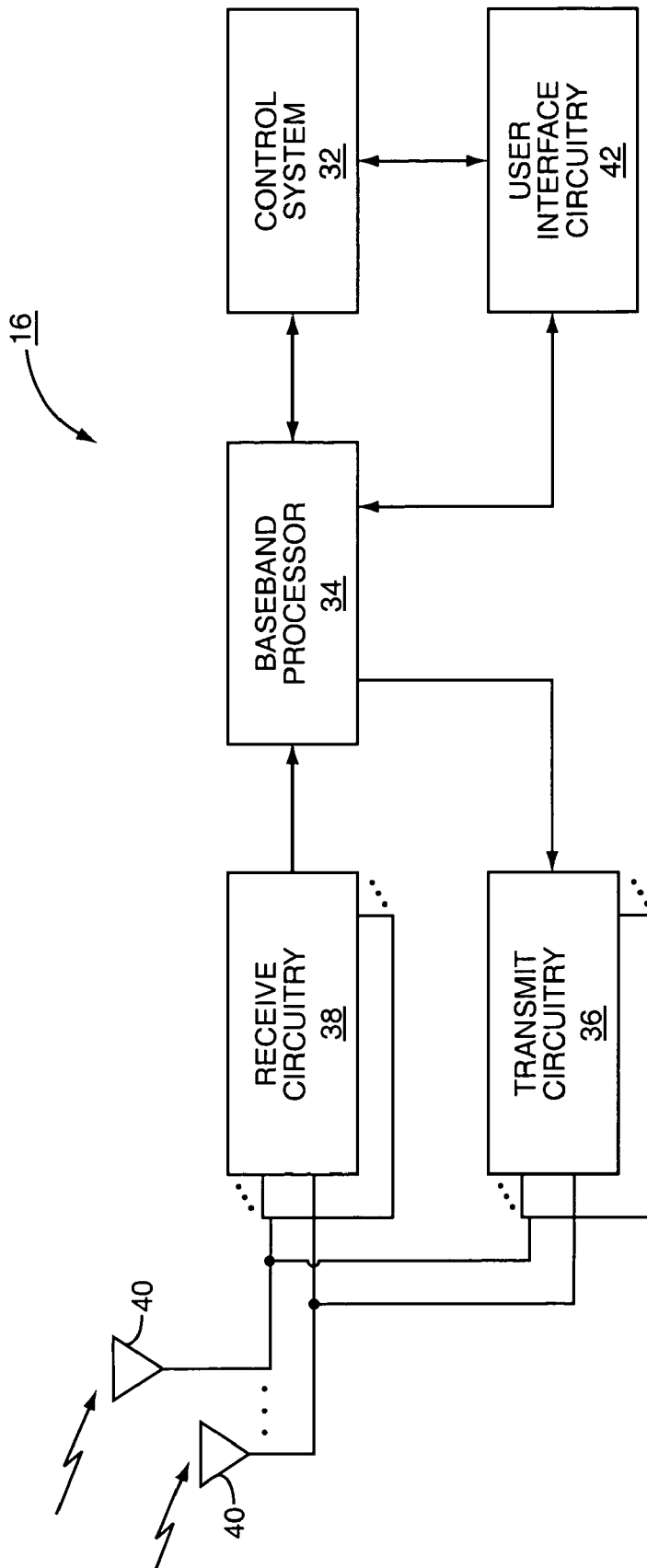


FIG. 3

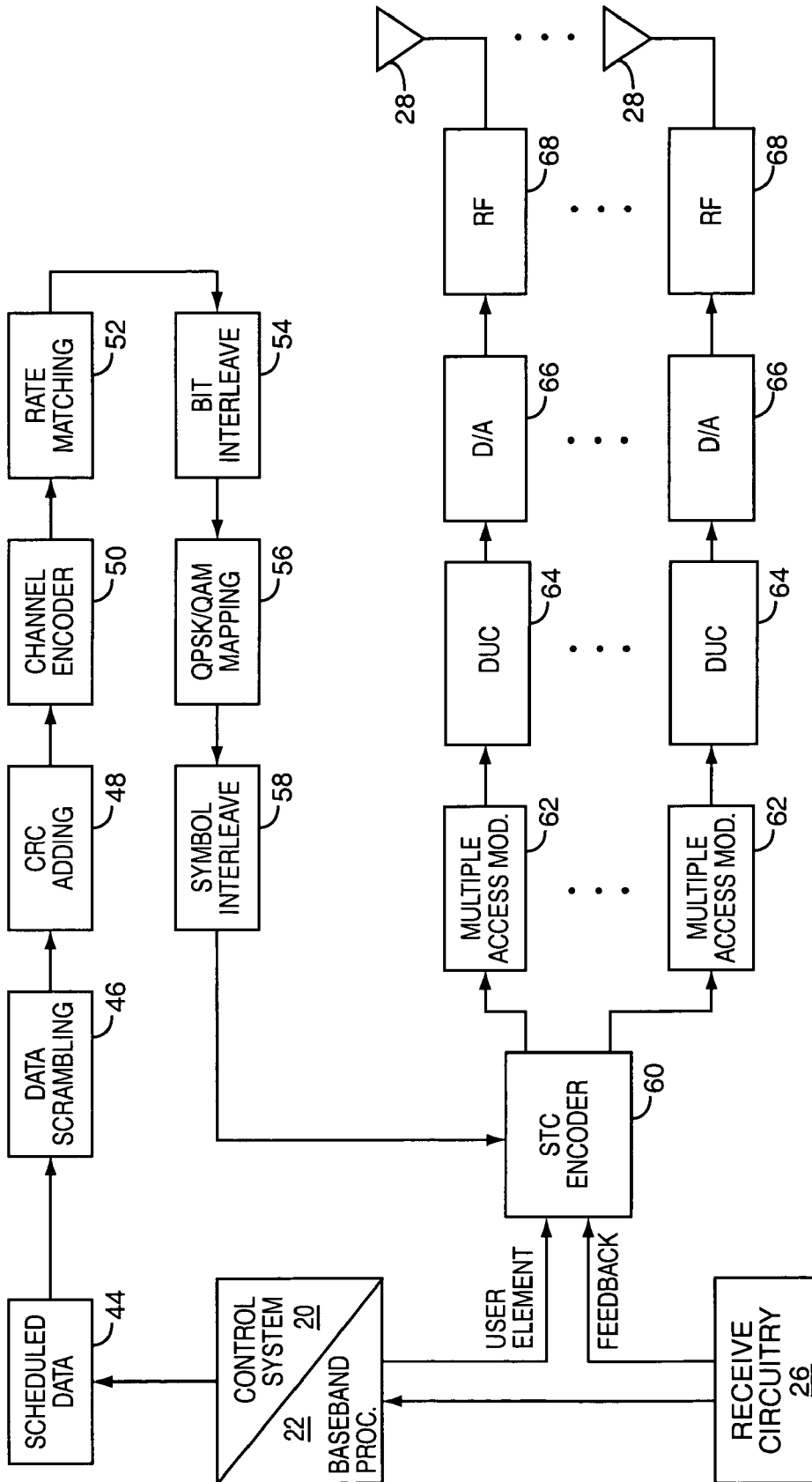


FIG. 4

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