

- (54) **COMMISSIONING TOOL, COMMISSIONING SYSTEM AND METHOD OF COMMISSIONING A NUMBER OF WIRELESS NODES**
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- (52) **U.S. Cl.** **398/116**; 398/117; 398/127
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 398/124–128
- See application file for complete search history.

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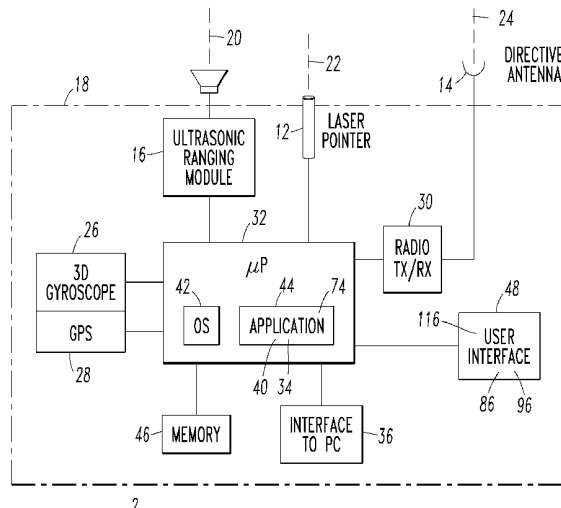
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(57) **ABSTRACT**

A commissioning tool includes a laser pointer structured to reflect light from a wireless lighting ballast, a directive antenna, a ranging module structured to determine distance to the ballast, and a housing. The pointer, antenna and ranging module are each mounted in the same common orientation with respect to the housing. A 3D gyroscope determines azimuth angle and elevation angle of the same common orientation. A GPS and dead reckoning system determines the global position of the tool. A wireless transceiver cooperates with the antenna. A processor cooperates with the transceiver to receive a unique device identifier from the ballast. The processor receives the distance, the azimuth and elevation angles, and the global position of the tool, and controls the light source. The processor may output the distance, the azimuth and elevation angles, the global position of the tool and the unique device identifier to another processor.

23 Claims, 6 Drawing Sheets



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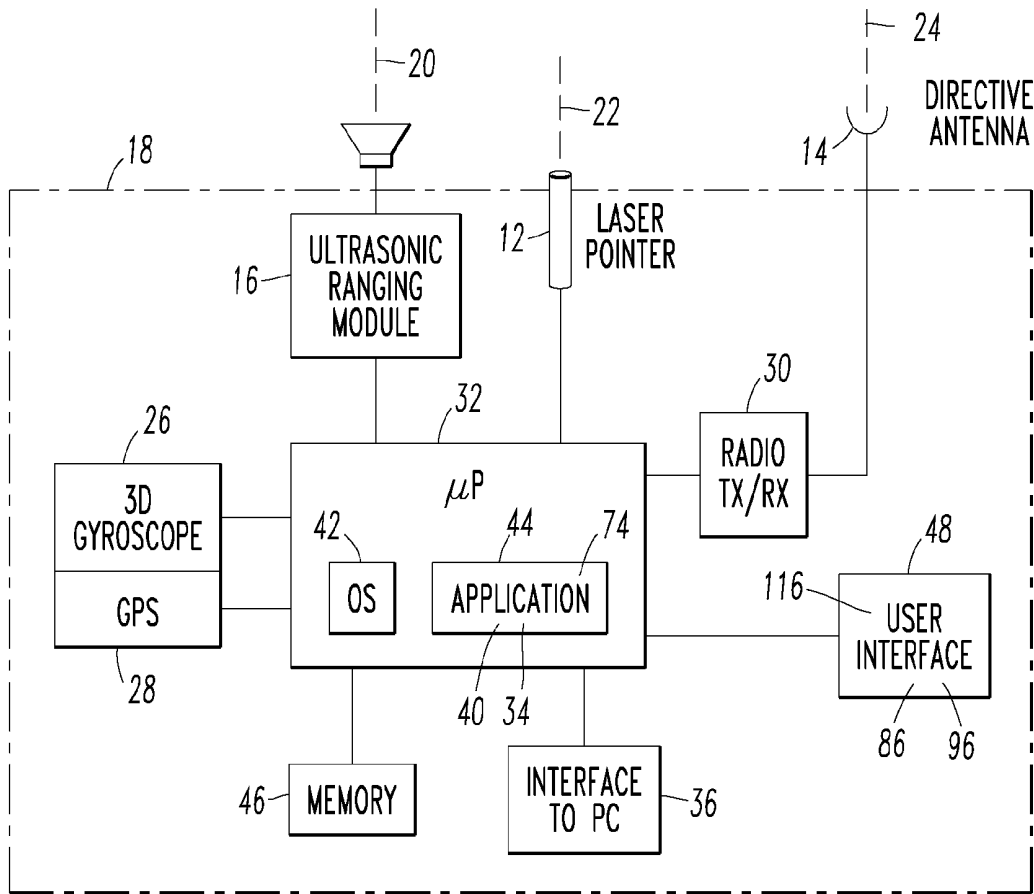
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FIG. 1

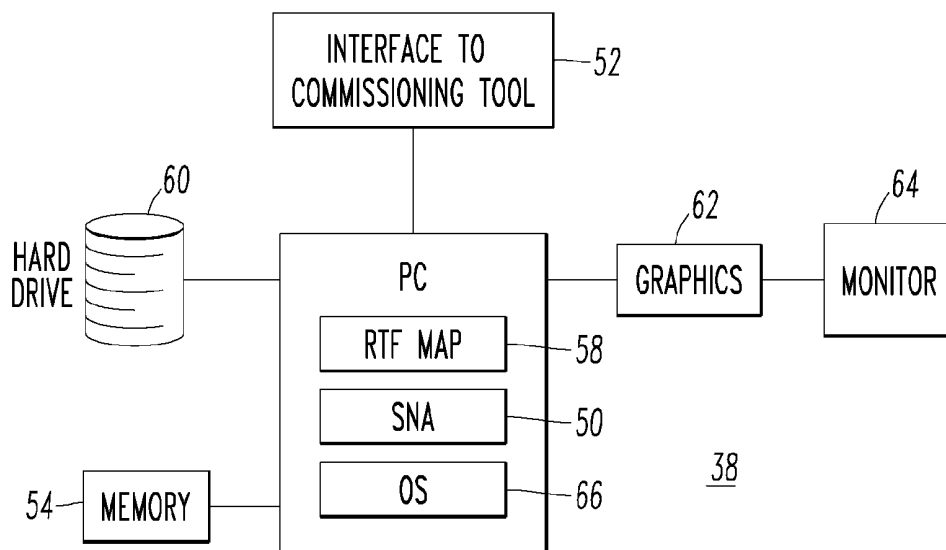
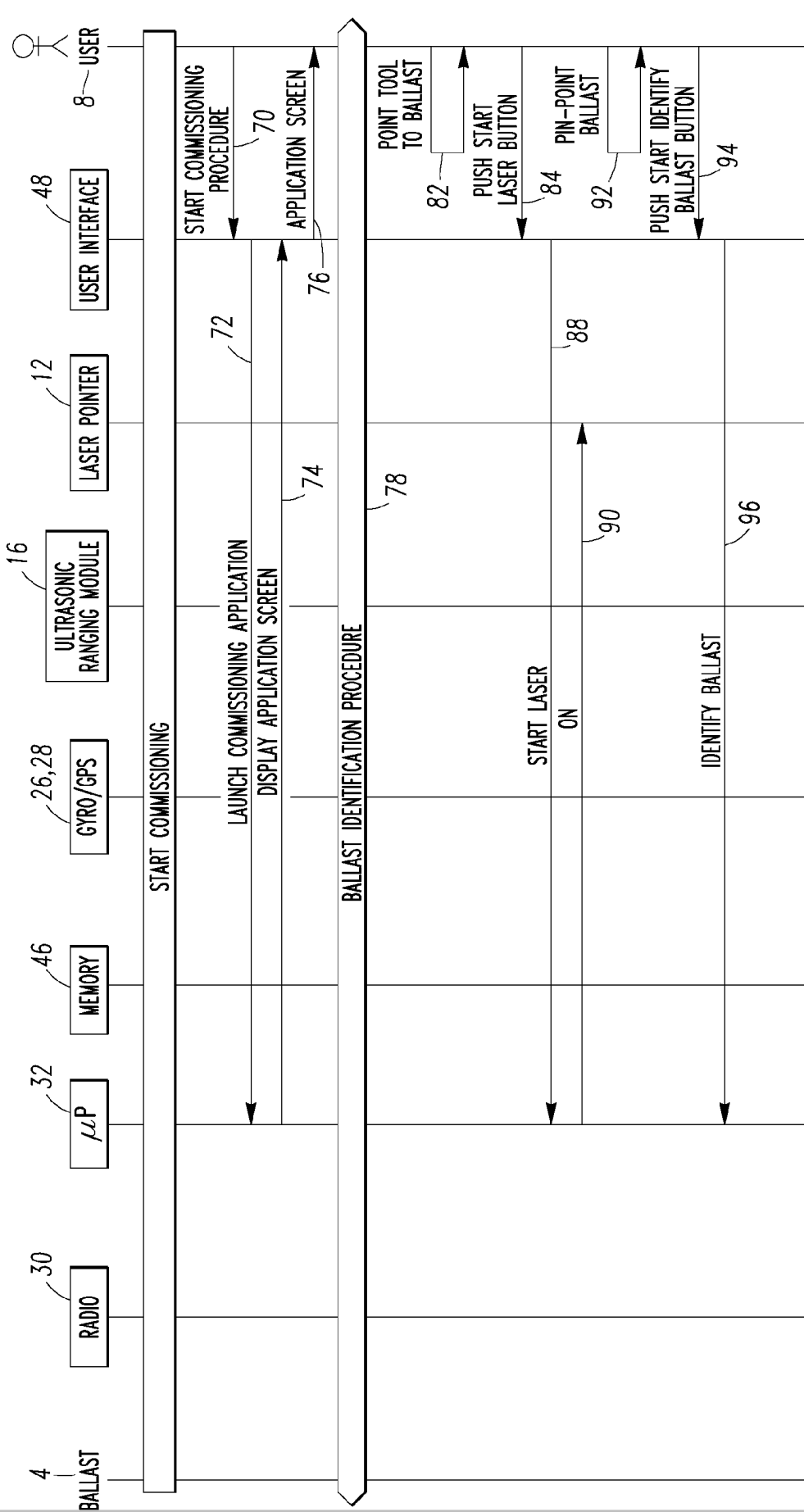


FIG. 2



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FIG. 3A

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