

BRIEF SUMMARY

[0004] A blow-out preventer (BOP) may be improved by having a subsea processing unit located underwater with the blow-out preventer. The processing unit may enable the blow-out preventer to function as a blow-out arrestor (BOA), because the processing unit may determine problem conditions exist that warrant taking action within the blow-out preventer to prevent and/or arrest a possible blow-out condition.

[0005] According to a first aspect, an apparatus may include an underwater drilling component, in which the underwater drilling component may include a physical receptor configured to receive a first processor unit, an inductive power device configured to transfer power to the first processor unit through the physical receptor, and a wireless communications system configured to communicate with the first processor unit through the physical receptor.

[0006] According to a second aspect, an apparatus may include a housing; a processor disposed within the housing; an inductive power device coupled to the processor and disposed within the housing, the inductive power device configured to receive power for the processor through the housing; and a wireless communications system coupled to the processor and configured to communicate with an underwater drilling component.

[0007] According to a third aspect, a method of controlling an underwater drilling component may include receiving power, at a subsea processor, through an inductive coupling with the underwater drilling component, and communicating wirelessly, from the subsea processor, with the underwater drilling component to control the underwater drilling component.

[0008] There is also disclosed an apparatus may include at least one subsea component of an underwater drilling tool; and at least one subsea processor configured to wirelessly communicate with the subsea component, in which the at least one subsea component and the at least one subsea processor are configured to communicate according to a time division multiple access (TDMA) scheme.

6. An apparatus, comprising:

a housing;

a processor disposed within the housing;

an inductive power device coupled to the processor and disposed within the housing, the inductive power device configured to receive power for the processor though the housing; and

a wireless communications system coupled to the processor and configured to communicate with an underwater drilling component.

7. The apparatus of claim 6, in which the wireless communications system is configured to receive sensor data from the underwater drilling component, and the apparatus further comprises memory configured to store the sensor data.

8. The apparatus of claim 6, in which the wireless communications system is configured to receive remote commands from at least one of an offshore network and an onshore network.

9. The apparatus of claim 6, in which the wireless communications system is configured to transmit commands to the underwater drilling component to control the underwater drilling component.

10. The apparatus of claim 9, ~~in which~~ further comprising a software model and wherein the processor is configured to control the underwater drilling component according to a the software model.

11. The apparatus of claim 9, in which the wireless communications system is configured to retrieve an identifier from the underwater drilling component and the processor is configured to control the underwater drilling component according to a model matching the retrieved identifier.

12. The apparatus of claim 6, in which the wireless communications system is configured to communicate with other processors communicating with the underwater drilling component.