

Claim Mapping of the '750 patent		
1[pre]. A device configured to operate in a lower power mode and a higher power mode, the device comprising:		19[pre]. A device comprising:
	14[pre]. At least one non-transitory computer readable medium storing instructions that, when executed by at least one processor, cause the at least one processor to perform a method of monitoring an acoustic environment of a device to receive acoustic input from the environment of the device while the device is operating in a low power mode, the method comprising:	
1[a] at least one processor configured to perform at least one processing stage on an acoustic input received from an environment of the device while the device is operating in the lower power mode, performing the at least one processing stage comprising:	14[a] performing at least one processing stage on the acoustic input, the at least one processing stage comprising:	19[a] at least one processor configured to process acoustic input from an environment of the device while the device is operating in a low power mode, the processing comprising:

1[a(i)] determining in the lower power mode whether the acoustic input includes a specific word or phrase that, when spoken, indicates that a voice interface of the device is to be engaged for provision of subsequent input, wherein the determining comprises:		
1[a(i(A)))] performing automatic speech recognition (ASR), while in the lower power mode, to recognize at least one word or phrase in the acoustic input;	14[a(i)] performing automatic speech recognition (ASR), while in the low power mode, to recognize at least one word or phrase in the acoustic input;	19[a(i)] performing automatic speech recognition (ASR), while in the low power mode, to recognize at least one word or phrase in the acoustic input;
1[a(i(B)))] determining, while in the lower power mode, whether the recognized at least one word or phrase matches the specific word or phrase;	14[a(ii)] determining, while in the low power mode, whether the recognized at least one word or phrase matches a trigger word or phrase;	19[a(ii)] determining, while in the low power mode, whether the recognized at least one word or phrase matches a trigger word or phrase;

1[a(ii)]in response to determining that the acoustic input includes the specific word or phrase, requesting, via a network while in the lower power mode, that at least one server perform recognition on at least a portion of the acoustic input to determine whether the acoustic input includes at least one voice command;	14[a(iii)] in response to determining that the recognized at least one word or phrase matches the trigger word or phrase, requesting, via a network while in the low power mode, that at least one server perform recognition on at least a portion of the acoustic input to determine whether the acoustic input includes one or more voice commands;	19[a(iii)] in response to determining that the recognized at least one first word or phrase matches the trigger word or phrase, requesting that at least one server perform recognition on at least a portion of the acoustic input to determine whether the acoustic input includes one or more voice commands;
1[a(iii)] in response to receiving an indication from the at least one server that the acoustic input includes at least one voice command, selecting whether to remain in the lower power mode or to transition to a higher power mode; and	14[a(iv)] in response to receiving an indication from the at least one server that the acoustic input includes at least one voice command, selecting whether to remain in the lower power mode or to transition to a higher power mode, and	19[a(iv)] in response to receiving an indication from the at least one server that the acoustic input includes at least one voice command, selecting whether to remain in the lower power mode or to transition to a higher power mode; and
1[a(iv)] responding to the at least one voice command, in either the lower power mode or the higher power mode, depending on the selecting.	14[a(v)] responding to the at least one voice command recognized by the at least one server, in either the lower power mode or the higher power mode, depending on the selecting.	19[a(v)] performing at least one task to carry out the at least one voice command in the acoustic input recognized by the at least one server, in either the lower power mode or the higher power mode, depending on the selecting.

2. The device of claim 1, wherein the at least one processor comprises a first processor configured to perform at least one first processing stage and a second processor configured to perform at least one second processing stage.		
3. The device of claim 2, wherein the first processor is configured to perform at least one first processing stage prior to the second processor being engaged to perform at least one second processing stage.		
4. The device of claim 3, wherein the first processor is a digital signal processor configured to operate at a lower power than the second processor.		

5. The device of claim 4, wherein the first processor is configured to perform at least one voice activity detection processing stage including spectral analysis on the acoustic input to evaluate whether the spectrum of the acoustic input is indicative of voice activity, periodicity analysis to evaluate whether the signal periodicity is indicative of voice activity and/or phone loop analysis to evaluate whether the acoustic input includes speech.		
6. The device of claim 4, wherein the first processor is configured to perform the ASR at least in part by performing limited vocabulary automatic speech recognition on the acoustic input to determine whether the acoustic input includes a word or phrase from a limited set, the limited set including the specific word or phrase.	15. The at least one non-transitory computer readable medium of claim 14, wherein the method comprises performing limited vocabulary automatic speech recognition on the acoustic input to determine whether the at least one first word or phrase matches the trigger word or phrase.	

7. The device of claim 4, wherein the second processor is configured to perform the ASR on the acoustic input, at least one classification processing stage and/or at least one natural language processing stage to understand the meaning of the voice command.		
8. The device of claim 7, wherein the second processor is configured to perform the ASR at least in part by performing limited vocabulary automatic speech recognition on the acoustic input to determine whether the acoustic input includes a word or phrase from a limited set, the limited set including the specific word or phrase.		
9. The device of claim 7, wherein the device is further configured to provide, prior to activating the second processor or turning on a display of the device, at least one indication to the user to confirm that the acoustic input was received and is being processed.	16. The at least one non-transitory computer readable medium of claim 14, wherein the method comprises providing, while in the low power mode, at least one indication to the user to confirm that the acoustic input was received and is being processed.	

10. The device of claim 3, wherein performing the at least one first processing stage comprises evaluating at least one contextual cue selected from a group consisting of: time of day, motion of the device, location of the device, an occurrence of an event on the device, recent activity on the device, and state of a battery powering the device.	18. The at least one non-transitory computer readable medium of claim 14, wherein the method further comprises evaluating, while in the low power mode, at least one contextual cue selected from a group consisting of: time of day, motion of the device, location of the device, an occurrence of an event on the device, recent activity on the device, and state of a battery powering the device.	
11. The device of claim 3, wherein performing the at least one second processing stage comprises evaluating at least one contextual cue selected from a group consisting of: time of day, motion of the device, location of the device, an occurrence of an event on the device, recent activity on the device, and state of a battery powering the device.		

12. The device of claim 1, wherein at least one task specified by the voice command is performed with the device selecting to remain in the lower power mode.	17. The at least one non-transitory computer readable medium of claim 14, wherein responding to the at least one voice command comprises initiating performance of at least one task specified by the voice command with the device remaining in the low power mode.	
13. The device of claim 1, wherein the device is further configured to perform one or more default actions when a specific task could not be ascertained from the acoustic input.		