~~WHAT IS CLAIMED IS:~~

CLAIMS

1. A fire-fighting system comprising:

a pump;

a nozzle for directing fluid ~~flow~~ from said pump to a target area;

a discharge valve ~~controlling~~ configured to control fluid flow between said pump and said nozzle;

a ~~sensor coupled to said nozzle, wherein said sensor detects movement of said nozzle and generates a signal indicative of the detected movement; and~~

~~a controller communicatively coupled to said sensor, said controller configured to:~~

~~receive the signal from said sensor; and~~

~~control at least one of said discharge valve, said pump, and said nozzle based on the detected movement of the nozzle.~~

~~2. The system of Claim 1, wherein said sensor comprises an accelerometer.~~

~~3. The system of Claim 1 further comprising a fire-fighting device having a tank for holding fluid therein, wherein said pump, said discharge valve, and said controller are each located at said fire-fighting device and remote from said nozzle, wherein said nozzle further comprises a transceiver communicatively coupled to said sensor and~~ valve pressure sensor configured to ~~transmit the signal to said controller.~~

~~4. The system of Claim 1, wherein said controller is further configured to determine that the detected movement exceeds a predetermined movement threshold.~~

~~5. The system of Claim 4, wherein said controller is further configured to control said pump, in response to determining that the detected movement exceeds a predetermined~~

threshold, to operate at a reduced pump speed, wherein the reduced pump speed causes at least one of a reduced fluid pressure and a reduced fluid flow at said nozzle.

6. The system of Claim 4, wherein said nozzle further comprises:

a body defining a fluid passage extending between an inlet and an outlet of said body; and

a nozzle valve located within the fluid passage and coupled in communication with said controller, wherein said controller is further configured to close said nozzle valve, in response to determining that the detected movement exceeds a predetermined threshold, to inhibit fluid flow from said inlet to said outlet.

7. The system of Claim 6, wherein said nozzle further comprises a nozzle valve control assembly, said nozzle valve control assembly comprising:

a solenoid communicatively coupled to said controller and comprising a plunger moveable between a first position and a second position; and

a biasing element coupled to said nozzle valve, wherein said plunger engages said biasing element when said plunger is in the first position, and said biasing element biases the nozzle valve towards a closed position when said plunger is in the second position.

8. The system of Claim 7, wherein said controller is further configured to control said solenoid, in response to determining that the detected movement exceeds the predetermined threshold, to move said solenoid plunger from the first position to the second position, thereby causing said biasing element to bias the nozzle valve to the closed position.

9. The system of claim 4, wherein said nozzle comprises a baffle in communication with said controller, said baffle configured to control a nozzle pattern of fluid flow from the nozzle, wherein said controller is configured to control said baffle, in response to determining that the detected movement exceeds the predetermined threshold, to change the nozzle pattern of the nozzle.

10. The system of Claim 4, wherein the detected movement includes a change in orientation of said nozzle.

~~11. The system of Claim 4, wherein said controller is further configured to cause an alert to be activated in response to determining that the detected movement exceeds the predetermined threshold.~~

~~12. A controller for controlling a fire-fighting system including a pump, a nozzle, and a discharge valve controlling fluid flow between the pump and the nozzle, said controller configured to:~~

~~receive a signal from a sensor coupled to the nozzle, wherein the sensor detects movement of the nozzle and the signal is indicative of the detected movement; and~~

~~control at least one of the discharge valve, the pump, and the nozzle based on the detected movement of the nozzle.~~

~~13. The controller of Claim 12, wherein said controller is further configured to determine that the detected movement exceeds a predetermined movement threshold.~~

~~14. The controller of Claim 13, wherein said controller is further configured to control the pump, in response to determining that the detected movement exceeds a predetermined threshold, to operate at a reduced pump speed wherein the reduced pump speed causes at least one of a reduced~~ detect a fluid pressure ~~and a reduced~~ of the fluid ~~flow~~ at ~~the nozzle.~~said discharge valve;

~~15. The controller of Claim 13, wherein said controller is further configured to close~~ a nozzle ~~valve located within the nozzle, in response to determining that the detected movement exceeds a predetermined threshold, to inhibit fluid flow from the nozzle.~~

~~16. The controller of Claim 13, wherein said controller is further configured to close the discharge valve, in response to determining that the detected movement exceeds the predetermined threshold, to inhibit fluid flow from the pump to the nozzle.~~

~~17. A method of controlling a fire-fighting system including a pump, a nozzle, and a discharge valve controlling fluid flow between the pump and the nozzle, said method comprising:~~

~~receiving a signal from a~~ pressure sensor coupled to ~~the nozzle, wherein the sensor detects movement of the nozzle and the signal is indicative of the detected movement; and~~

~~controlling at least one of the discharge valve, the pump, and the nozzle based on the detected movement of the nozzle.~~

~~18. The method of Claim 17 further comprising determining that the detected movement exceeds a predetermined movement threshold.~~

~~19. The method of Claim 18 further comprising controlling the pump, in response to determining that the detected movement exceeds the predetermined threshold, to operate at a reduced pump speed, wherein the reduced pump speed causes at least one of a reduced fluid pressure and a reduced fluid flow at said nozzle.~~

~~20. The method of Claim 18 further comprising closing the discharge valve, in response to determining that the detected movement exceeds the predetermined threshold, to inhibit fluid flow from the pump to the nozzle.~~

~~21. A nozzle adapted for handheld control by a firefighter, said nozzle comprising:~~

~~a body;~~

~~a beacon coupled to said body and operable to output at least one of an audible and a visual signal when said beacon is activated; and~~

~~an operator proximity assembly coupled to said body and communicatively coupled to said beacon, wherein said operator proximity assembly activates said beacon in response to detecting that the firefighter has become separated from said body.~~

~~22. The nozzle of Claim 21, wherein said body defines a fluid passage extending between an inlet and an outlet of said body, said nozzle further comprising a nozzle valve located within the fluid passage, wherein said operator proximity assembly closes said nozzle valve in response to detecting that the firefighter has become separated from said body, wherein said operator proximity assembly comprises a switch that is engaged by the firefighter during use, and wherein said operator proximity assembly detects that the~~

~~firefighter is separated from said body by detecting that said switch has been disengaged for a predetermined time period.~~

~~23. The nozzle of Claim 22 further comprising a nozzle valve control assembly, said nozzle valve control assembly comprising:~~

~~a solenoid communicatively coupled to said operator proximity assembly and comprising a plunger moveable between a first position and a second position; and~~

~~a biasing element coupled to said nozzle valve, wherein said plunger engages said biasing element when said plunger is in the first position, and said biasing element biases the nozzle valve towards a closed position when said plunger is in the second position.~~

~~24. The nozzle of Claim 21, wherein said operator proximity assembly comprises a sensor operable to~~ said nozzle and configured to detect ~~movement of said nozzle and generate a signal indicative of the detected movement, wherein said operator proximity assembly detects that the firefighter is separated from said body by determining that the detected movement of said nozzle exceeds a predetermined threshold.~~

~~25. The nozzle of Claim 21, wherein said operator proximity assembly comprises a sensor operable to detect movement of said nozzle and generate a signal indicative of the detected movement, wherein said operator proximity assembly detects that the firefighter is separated from said body by determining that the detected movement of said nozzle is less than a predetermined threshold for a predetermined time period.~~

~~26. The nozzle of Claim 21, wherein said operator proximity assembly comprises a sensor operable to detect the firefighter within a predefined range of said body, wherein said operator proximity assembly detects that the firefighter is separated from said body by determining that the firefighter is not within the predefined range.~~

~~27. The nozzle of Claim 21, wherein said beacon comprises at least one LED configured to be perceptible in low visibility conditions by the firefighter when separated from said body.~~

~~28. The nozzle of Claim 21 further comprising a transceiver configured to transmit a signal to a base controller of a fire-fighting device located remote from the nozzle, wherein the signal indicates that the firefighter is separated from the body, wherein said beacon is communicatively coupled to said transceiver and is configured to control output of the at least one audible and visible signal based on a signal received at the transceiver from the base controller.~~

~~29. The nozzle of Claim 28, wherein said beacon comprises a plurality of LEDs, said plurality of LEDs configured to blink simultaneously in unison in response to a signal received at said transceiver from said base controller.~~

~~30. A nozzle system for use in a fire-fighting environment, said nozzle system comprising:~~

~~a nozzle adapted for handheld control by a firefighter;~~

~~a beacon mounted on said nozzle and operable to output at least one of an audible and a visual signal when said beacon is activated; and~~

~~an operator proximity assembly coupled to at least one of the firefighter and said nozzle, said operator proximity assembly configured to activate said beacon in response to the firefighter being separated from said nozzle.~~

~~31. The nozzle system of Claim 30, wherein said operator proximity assembly comprises at least one of a first sensor operable to detect movement of said nozzle and generate a signal indicative of the detected movement and a second sensor operable to detect the firefighter within a predefined range of said nozzle.~~

~~32. The nozzle system of Claim 30 further comprising a base controller communicatively coupled to said operator proximity assembly, said beacon, and an alert visible by an adjacent firefighter, wherein said base controller is configured to receive a signal from said operator proximity assembly indicating that the firefighter is separated from said nozzle and activate said beacon and the alert in response.~~

~~33. The nozzle system of Claim 30, wherein said operator proximity assembly comprises a sensor coupled to said nozzle, said sensor operable to detect movement of said nozzle and generate a signal indicative of the detected movement, and wherein said operator proximity assembly is configured to detect that the firefighter has become separated from said nozzle by determining that the detected movement of the nozzle exceeds a predetermined threshold.~~

~~34. The nozzle system of Claim 30, wherein said operator proximity assembly comprises a sensor operable to detect a distance between the firefighter and said nozzle and generate a signal indicative of the detected distance, wherein said operator proximity assembly is configured to detect that the firefighter has become separated from said nozzle by determining that the detected distance exceeds a predetermined threshold.~~

~~35. The nozzle system of Claim 34, wherein said sensor comprises a radio-frequency identification (RFID) tag configured to be coupled to one of the firefighter and said nozzle and a RFID reader configured to be coupled to the other of the firefighter and said nozzle.~~

~~36. The nozzle system of Claim 35 wherein said RFID reader is coupled to said nozzle.~~

~~37. The nozzle system of Claim 35, wherein said RFID tag is embedded in an article of clothing configured to be worn by the firefighter.~~

~~38. The nozzle system of Claim 30, wherein said beacon comprises at least one LED configured to be perceptible in low visibility conditions by the firefighter when separated from said nozzle.~~

~~39. The nozzle system of Claim 30, wherein said beacon comprises a speaker configured to be audible at a distance of at least 20 yards.~~

~~40. A method of controlling a fire-fighting system comprising:~~

~~detecting, via an operator proximity assembly coupled to at least one of a firefighter and a nozzle adapted for handheld use by the firefighter, that the firefighter is separated from the nozzle; and~~

~~activating, in response to detecting that the firefighter is separated from the nozzle, a beacon mounted to the nozzle such that the beacon outputs at least one of an audible and a visual signal.~~

~~41. A fire-fighting system comprising:~~

~~a pump;~~

~~a nozzle for directing fluid from said pump to a target area, said nozzle comprising a first~~ a fluid pressure ~~sensor configured to detect a first fluid pressure~~ of the fluid at said nozzle~~;~~

~~a discharge valve controlling fluid flow between said pump and said nozzle;~~

~~a second pressure sensor configured to detect a second fluid pressure of the fluid at said discharge valve; and~~

~~a controller communicatively coupled to said first pressure sensor and said second pressure sensor, said controller configured to:~~

~~control operation of at least one of said pump and said discharge valve based on a user-requested fluid pressure and the detected first fluid pressure at said nozzle in a primary mode of operation; and~~

~~control operation of said at least one of said pump and said discharge valve based on the user-requested fluid pressure and the detected second fluid pressure at said discharge valve in a secondary mode of operation when communication between said first pressure sensor and said controller is interrupted.~~

~~42. The fire-fighting system of Claim 41, wherein said nozzle further comprises a transceiver communicatively coupled to said first pressure sensor and configured for wireless communication with said controller.~~

~~43. The fire-fighting system of Claim 42, wherein said nozzle further comprises a user-interface communicatively coupled to said transceiver and configured to receive the user-requested fluid pressure from a user, said transceiver configured to transmit the user-requested fluid pressure to said controller.~~

~~44. The fire-fighting system of Claim 43, wherein said controller is further configured to control operation of said at least one of said pump and said discharge valve based on the user-requested fluid pressure last received at said controller from said transceiver.~~

~~45. The fire-fighting system of Claim 41, wherein said controller is further configured to control operation of said discharge valve by controlling an actuation state of said discharge valve.~~

~~46. The fire-fighting system of Claim 41, wherein said controller is further configured to control operation of said pump by at least one of controlling a speed of said pump controlling an actuation state of an additional valve of said fire-fighting system, the additional valve coupled in fluid communication with said pump.~~

~~47. The fire-fighting system of Claim 41, wherein said controller is further configured to determine that communication between said first pressure sensor and said controller has been interrupted by determining that the time since a last received signal from said first pressure sensor exceeds a predetermined time threshold.~~

~~48. The fire-fighting system of Claim 41, wherein the user-requested fluid pressure is a preset pressure associated with said nozzle and stored on a memory located at said nozzle.~~

~~49. The fire-fighting system of Claim 41, wherein said nozzle is a first nozzle and said discharge valve is a first discharge valve, the fire-fighting system further comprising:~~

~~a second nozzle for directing fluid flow from said pump to a target area, said second nozzle comprising a third pressure sensor configured to detect a third fluid pressure of fluid at said second nozzle;~~

~~a second discharge valve controlling fluid flow between said pump and said second nozzle; and~~

~~a fourth pressure sensor configured to detect a fourth fluid pressure of the fluid at said second discharge valve.~~

~~50. The fire-fighting system of Claim 49, wherein said controller is further configured to:~~

~~control operation of at least one of said pump and said second discharge valve based on a user-requested fluid pressure at said second nozzle and the detected third fluid pressure of fluid at said second nozzle in the primary mode of operation; and~~

~~control operation of said at least one of said pump and said second discharge valve based on the user-requested fluid pressure at said second nozzle and the detected fourth fluid pressure at said second discharge valve in a tertiary mode of operation when communication between said third pressure sensor and said controller is interrupted.~~

~~51. The fire-fighting system of Claim 41 further comprising a fire-fighting device, wherein said pump and said controller are located at said fire-fighting device and said nozzle is configured to be positioned remote from said fire-fighting device.~~

~~52. A method of controlling a fire-fighting device including a pump, said method comprising:~~

~~receiving, at a controller, a first pressure signal from a first pressure sensor coupled to a nozzle, the first pressure signal indicative of a first fluid pressure of a fluid at the nozzle;~~

~~receiving, at the controller, a second pressure signal from a second pressure sensor located remote from the first pressure sensor, the second pressure signal indicative of a second fluid pressure of fluid at a discharge valve that controls fluid flow between the pump and the nozzle;~~

~~controlling operation of at least one of the pump and the discharge valve based on a user-requested fluid pressure and the first pressure signal in a primary mode of operation; and~~

~~controlling operation of the at least one of the pump and the discharge valve based on the user-requested fluid pressure and the second pressure signal in a secondary mode of operation when communication between the first pressure sensor and the controller is interrupted.~~

~~53. The method of Claim 52 further comprising transmitting, via a transceiver communicatively coupled to the first pressure sensor, the first pressure signal to the controller.~~

~~54. The method of Claim 53 further comprising:~~

~~receiving, at a user interface communicatively coupled to the transceiver, the user-requested fluid pressure from a user; and~~

~~transmitting, via the transceiver, the user-requested fluid pressure to the controller.~~

~~55. The method of Claim 54 further comprising receiving a plurality of user-requested fluid pressures from the transceiver, wherein said controlling operation of the at least one of the pump and the discharge valve is based on the most recently received user-requested fluid pressure of the plurality of user-requested fluid pressures.~~

~~56. The method of Claim 52, wherein said controlling operation of the at least one of the pump and the discharge valve in the primary mode of operation and the secondary mode of operation comprises controlling an actuation state of the discharge valve.~~

~~57. The method of Claim 52, wherein said controlling operation of the at least one of the pump and the discharge valve in the primary mode of operation and the secondary mode of operation comprises controlling operation of the pump by controlling a speed of the pump.~~

~~58. The method of Claim 52 further comprising determining that communication between the first pressure sensor and the controller is interrupted by determining that a time since a last received signal from the first pressure sensor exceeds a predetermined time threshold.~~

~~59. A controller for use with a fire-fighting device including a pump, said controller configured for communication with a first pressure sensor coupled to a nozzle, said controller further configured for communication with a second pressure sensor located remote from the first pressure sensor, said controller configured to:~~

~~receive a first pressure signal from the first pressure sensor, the first pressure signal indicative of a first fluid pressure of a fluid at the nozzle;~~

~~receive a second pressure signal from the second pressure sensor, the second pressure signal indicative of a second fluid pressure of fluid at a discharge valve that controls fluid flow between the pump and the nozzle;~~

~~control operation of at least one of the pump and the discharge valve based on a user-requested fluid pressure and the first pressure signal in a primary mode of operation; and~~

~~control operation of the at least one of the pump and the discharge valve based on the user-requested fluid pressure and the second pressure signal in a secondary mode of operation when communication between the first pressure sensor and the controller is interrupted.~~

~~60. The controller of Claim 59, wherein said controller is further configured to determine that communication between the first pressure sensor and the controller is interrupted by determining that a time since a last received signal from the first pressure sensor exceeds a predetermined time threshold.~~

~~61. A fire-fighting system comprising:~~

~~a fire-fighting device comprising a discharge valve and a hose storage compartment; and~~

~~a hose line assembly comprising a hose and a nozzle, said hose extending between a first end removably coupled to said discharge valve and a second end configured to be removably coupled to said nozzle, said hose movable from a storage position, in which said hose is positioned substantially within said hose storage compartment, to an active position in which said second end is positioned remote from said fire-fighting device to facilitate directing a fluid flow to a target area;~~

~~a sensor coupled to at least one of said fire-fighting device and said hose line assembly, wherein said sensor detects whether said hose is in the storage position; and~~

~~a controller in communication with said sensor, said controller configured to automatically control an actuation state of said discharge valve based on whether said sensor detects that said hose is in the storage position.~~

~~62. The fire-fighting system of Claim 61, wherein said sensor comprises a scale coupled to said fire-fighting device, said scale configured to detect a weight of said hose in said hose storage compartment.~~

~~63. The fire-fighting system of Claim 62, wherein said controller is configured to determine that said hose is in the storage position by determining that the detected weight from said scale exceeds a predetermined threshold.~~

~~64. The fire-fighting system of Claim 63, wherein said controller is further configured to automatically control said discharge valve to be in a closed position in response to determining that the detected weight from said scale exceeds the predetermined threshold.~~

~~65. The fire-fighting system of Claim 63, wherein said controller is configured to determine that said hose is in the active position by determining that the detected weight from said scale is less than the predetermined threshold.~~

~~66. The fire-fighting system of Claim 61, wherein said sensor comprises a reader coupled to at least one of said hose line assembly and said fire-fighting device, said system further comprising an identifier coupled to the other of said hose line assembly and said fire-fighting device, wherein said reader is configured to detect said identifier when said hose is in the storage position.~~

~~67. The fire-fighting system of Claim 66, wherein said reader comprises a radio frequency identifier (RFID) scanner and said identifier comprises an RFID tag.~~

~~68. The fire-fighting system of Claim 67, wherein said hose extends a length between said first end and said second end, and wherein RFID tag is positioned on said hose such that said RFID tag is positioned closer to said first end than said second end.~~

~~69. The fire-fighting system of Claim 66, wherein said controller determines that said hose is in the storage position in response to said reader detecting said identifier, and wherein said controller automatically controls said discharge valve to be in a closed position in response to determining that said hose is in the storage position.~~

~~70. The fire-fighting system of Claim 61, wherein said sensor is a mechanical sensor.~~

~~71. The fire-fighting system of Claim 61, wherein said sensor comprises a first global positioning system (GPS) sensor coupled to said hose storage compartment and a second GPS sensor coupled to said hose line assembly.~~

~~72. A method of controlling a fire-fighting system including a fire-fighting device including a discharge valve and a hose storage compartment, the fire-fighting system further including a hose line assembly including a hose and a nozzle, the hose coupled to the discharge valve and the nozzle, said method comprising:~~

~~receiving a signal from a sensor coupled to at least one of the fire-fighting device and the hose line assembly, the sensor configured to detect whether the hose is in a storage position in which the hose is positioned substantially within the hose storage compartment, the signal indicating whether the hose is in the storage position; and~~

~~controlling, automatically, the discharge valve, based at least in part on whether the signal indicates that the hose is in the storage position.~~

~~73. The method of Claim 72, wherein the sensor is a scale coupled to the fire-fighting device and configured to detect a weight of the hose in the hose storage compartment, said method further comprising determining that the hose is in the storage position by determining whether a detected weight from the scale exceeds a predetermined threshold.~~

~~74. The method of Claim 73 further comprising controlling, automatically, the discharge valve to be in a closed position in response to determining that the detected weight from the scale exceeds the predetermined threshold.~~

~~75. The method of Claim 72, wherein the sensor includes a reader coupled to at least one of the hose line assembly and the fire-fighting device, wherein an identifier is coupled to the other of the hose line assembly and the fire-fighting device, said method further comprising detecting, via the reader, the identifier to determine that the hose is in the storage position.~~

~~76. The method of Claim 75 further comprising controlling, automatically, the discharge valve to be in a closed position in response to determining that the hose is in the storage position.~~

~~77. The method of Claim 72 further comprising:~~

~~determining that the hose is in the storage position based on the signal indicating that the hose is in the storage position; and~~

~~controlling the discharge valve to a closed position in response to determining that the hose is in the storage position.~~

~~78. The method of Claim 77 further comprising preventing, in response to determining that the hose is in the storage position, the discharge valve from being moved to the open position until the hose is no longer in the storage position.~~

~~79. A controller for controlling a fire-fighting system including a fire-fighting device including a discharge valve and a hose storage compartment, the fire-fighting system further including a hose line assembly including a hose and a nozzle, the hose coupled to the discharge valve and the nozzle, said controller configured to:~~

~~receive a signal from a sensor positioned on at least one of the fire-fighting device and the hose line assembly, wherein the sensor detects whether the hose is in a storage position in which the hose is positioned substantially within the hose storage compartment, the signal indicating whether the hose is in the storage position; and~~

~~control, automatically, the discharge valve based at least in part on whether the signal indicates that the hose is positioned substantially within the hose storage compartment.~~

~~80. The controller of Claim 79, wherein said controller is further configured to control, automatically, the discharge valve to be in a closed position in response to the signal indicating that the hose is positioned substantially within the hose storage compartment.~~

~~81. A fire-fighting system comprising:~~

~~a pump;~~

~~a nozzle for directing fluid from said pump to a target area;~~

~~a discharge valve configured to control fluid flow between said pump and said nozzle;~~

~~a valve pressure sensor configured to detect a fluid pressure of the fluid at said discharge valve~~; and

a controller communicatively coupled to said valve pressure sensor and comprising a memory having a machine learning algorithm stored thereon, said controller configured to:

receive a user-requested fluid pressure indicating a desired fluid pressure at said nozzle;

determine an expected fluid pressure differential between said nozzle and said discharge valve based on the machine learning algorithm and the ~~detected~~ fluid pressure detected by said valve pressure sensor at said discharge valve; ~~and~~

~~control operation of~~control operation of at least one of said pump and said discharge valve based on the detected fluid pressure of the fluid at said nozzle and the user-requested fluid pressure in a primary mode of operation to deliver fluid to said nozzle at the desired fluid pressure; and

control operation of said at least one of said pump and said discharge valve based on the expected fluid pressure differential and ~~the~~a last received user-requested

fluid pressure ~~to deliver fluid to~~in a secondary mode of operation when communication between said nozzle ~~at the desired fluid~~ pressure sensor and said controller is interrupted.

~~82~~2. The fire-fighting system of Claim ~~81~~1, wherein said controller is configured to determine an expected fluid pressure at said nozzle based on the expected fluid pressure differential and the detected fluid pressure at said discharge valve.

~~83~~ 3. The fire-fighting system of Claim ~~81 further comprising a nozzle pressure sensor coupled to said nozzle and configured to detect a fluid pressure of the fluid at said nozzle.~~

~~84. The fire-fighting system of Claim 83, wherein said controller is configured to control operation of said at least one of said pump and said discharge valve further based on the detected fluid pressure of the fluid at said nozzle in a primary mode of operation, said controller further configured to control operation of said at least one of said pump and said discharge valve based on the expected fluid pressure differential and a last received user-requested fluid pressure in a secondary mode of operation when communication between said nozzle pressure sensor and said controller is interrupted.~~

~~85. The fire-fighting system of Claim 83~~1, wherein said controller is further configured to:

determine a detected fluid pressure differential based on the detected fluid pressure at said nozzle and the detected fluid pressure at said discharge valve;

compare the detected fluid pressure differential with the expected fluid pressure differential; and

update the machine learning algorithm based on the comparison.

~~86~~4. The fire-fighting system of Claim ~~85~~3, wherein said controller is further configured to:

determine that the detected fluid pressure differential is different from the expected

fluid pressure differential; and

update the machine learning algorithm based on the determined difference between the detected fluid pressure differential and the expected fluid pressure differential.

~~87~~5. The fire-fighting system of Claim ~~85~~3, wherein said controller is configured to control operation of said at least one of said pump and said discharge valve by adjusting a control setting of said at least one of said pump and said discharge valve, and wherein said controller is further configured to:

determine that the detected fluid pressure at said nozzle is substantially the same as the desired fluid pressure at said nozzle; and

store, in response to determining that the detected fluid pressure at said nozzle is substantially the same as the desired fluid pressure, the control setting and the detected fluid pressure differential in the memory.

~~88~~6. The fire-fighting system of Claim ~~81~~1, wherein said nozzle further comprises a transceiver communicatively coupled to said valve pressure sensor and configured for wireless communication with said controller.

~~89~~7. The fire-fighting system of Claim ~~88~~6, wherein said nozzle further comprises a user-interface communicatively coupled to said transceiver and configured to receive the user-requested fluid pressure from a user, said transceiver configured to transmit the user-requested fluid pressure to said controller.

~~90~~8. The fire-fighting system of Claim ~~89~~7, wherein said controller is further configured to transmit the detected fluid pressure at said discharge valve to said transceiver at said nozzle, said user-interface configured to display the transmitted fluid pressure.

~~91~~9. The fire-fighting system of Claim ~~81~~1, wherein the user-requested fluid pressure is a preset pressure associated with said nozzle and stored on the memory.

~~92~~10. The fire-fighting system of Claim ~~81~~1, wherein said nozzle is a first nozzle, said valve pressure sensor is a first valve pressure sensor, and said discharge valve is a first

discharge valve, said fire-fighting system further comprising:

a second nozzle for directing fluid flow from said pump to a target area;

a second discharge valve controlling fluid flow between said pump and said second nozzle; and

a second valve pressure sensor configured to detect a fluid pressure of the fluid at said second discharge valve.

~~93~~11. The fire-fighting system of Claim ~~81~~1, wherein said controller is further configured to control operation of said discharge valve by controlling an actuation state of said discharge valve.

~~94~~12. The fire-fighting system of Claim ~~81~~1, wherein said controller is further configured to control operation of said pump by at least one of controlling a speed of said pump and controlling an actuation state of an additional valve of said fire-fighting system, the additional valve coupled in fluid communication with said pump.

~~95~~13. The fire-fighting system of Claim ~~81~~1 further comprising a fire-fighting device, wherein said pump and said controller are located at said fire-fighting device and said nozzle is configured to be positioned remote from said fire-fighting device.

~~96~~14. A method of controlling a fire-fighting device including a pump, said method comprising:

receiving a user-requested fluid pressure indicating a desired fluid pressure at a nozzle;

detecting, by a valve pressure sensor, a fluid pressure of a fluid at a discharge valve that controls fluid flow between the pump and the nozzle;

detecting, by a nozzle pressure sensor coupled to the nozzle, a fluid pressure of the fluid at the nozzle;

determining, by a controller communicatively coupled to ~~the~~said valve pressure sensor, an expected fluid pressure differential between the nozzle and the discharge valve based on the ~~detected~~ fluid pressure detected by the valve pressure sensor at the discharge valve and a machine learning algorithm stored on a memory of the controller; ~~and~~

controlling, by the controller, operation of at least one of the pump and the discharge valve based on the ~~expected~~detected fluid pressure ~~differential~~of the fluid at the nozzle and the user-requested fluid pressure in a primary mode of operation to deliver fluid to the nozzle at the desired fluid pressure~~.~~; and

~~97~~ controlling, by the controller, operation of the at least one of the pump and the discharge valve based on the expected fluid pressure differential and a last received user-requested fluid pressure in a secondary mode of operation when communication between the nozzle pressure sensor and the controller is interrupted.

15. The method of Claim ~~96~~14 further comprising determining, by the controller, an expected fluid pressure at the nozzle based on the expected fluid pressure differential and the detected fluid pressure at the discharge valve.

~~98~~16. The method of Claim ~~96~~14 further comprising:

~~detecting, by a nozzle pressure sensor, a fluid pressure of the fluid at the nozzle;~~

determining, by the controller, a detected fluid pressure differential based on the detected fluid pressure at the nozzle and the detected fluid pressure at the discharge valve;

comparing, by the controller, the detected fluid pressure differential with the expected fluid pressure differential; and

updating the machine learning algorithm based on said comparing.

~~99~~17. The method of Claim ~~98~~16 further comprising:

determining that the detected fluid pressure differential is different from the expected fluid pressure differential; and

updating the machine learning algorithm based on the determined difference between the detected fluid pressure differential and the expected fluid pressure differential.

~~100~~18. A controller for use with a fire-fighting device including a pump, said controller comprising a memory having a machine learning algorithm stored thereon, said controller configured for communication with a valve pressure sensor configured to detect a fluid pressure of a fluid at a discharge valve controlling fluid flow between the pump and a nozzle, said controller ~~configured to:~~being further configured for communication with a nozzle pressure sensor coupled to the nozzle and configured to detect a fluid pressure of the fluid at the nozzle, said controller configured to:

receive a user-requested fluid pressure indicating a desired fluid pressure at the nozzle;

determine an expected fluid pressure differential based on the machine learning algorithm and the ~~detected~~ fluid pressure detected by the valve pressure sensor at the discharge valve; ~~and~~

control operation of at least one of the pump and the discharge valve based on the ~~expected~~detected fluid pressure ~~differential~~of the fluid at the nozzle and the user-requested fluid pressure in a primary mode of operation to deliver fluid to ~~the~~said nozzle at the desired fluid pressure~~.~~; and

control operation of the at least one of the pump and the discharge valve based on the expected fluid pressure differential and a last received user-requested fluid pressure in a secondary mode of operation when communication between the nozzle pressure sensor and the controller is interrupted.