CLAIMS:

1. A system ~~(10) for generating an aesthetic flame effect (17), the system (10),~~ comprising:

a fuel source ~~(20)~~ having ~~two or more separate types of fuel; and~~

~~a nozzle assembly (12), comprising:~~

~~an outer nozzle (16)~~a first fuel tank configured to ~~receive~~store a first fuel ~~from the fuel source (20); and~~

~~an inner nozzle (14)~~having a first chemical composition and a second fuel tank configured to ~~receive~~store a second fuel ~~from the fuel source (20),~~having a second chemical composition different than the first chemical composition;

a nested nozzle assembly, comprising:

an outer nozzle defining an outer flow path; and

an inner nozzle having a wall defining an inner flow path, wherein at least a portion of the inner nozzle ~~(14)~~ is nested within at least ~~a~~an additional portion of the outer nozzle ~~(16); and~~ such that the outer flow path of the outer nozzle is defined by an outer surface of the wall of the inner nozzle;

~~an ignition feature (18)~~a burner configured to ~~receive~~ignite the first fuel, the second fuel, or both to generate ~~the aesthetic~~a flame effect ~~(17);~~

~~at least one input device (37, 38) configured to determine environmental factors of an environment (40) in which the~~downstream from the nested nozzle assembly ~~(12) is disposed; and~~ with respect to a flow of the first fuel, the second fuel, or both;

at least one actuator operatable to fluidly couple the first fuel tank with the nested nozzle assembly, the second fuel tank with the nested nozzle assembly, or both;

an automation controller ~~(28)~~ configured to ~~receive~~ control operation of the at least one actuator; and

at least one input device configured to provide data to the automation controller indicative of ~~the~~one or more environmental factors ~~determined by the at least one input device, and to operate,~~affecting an aesthetic of the flame effect, wherein the automation controller is configured to control operation of the at least one actuator based on the data~~, one or more actuators (158) to provide the first fuel to the outer nozzle (16), and to provide the second fuel to the inner nozzle (14).~~ .

2. The system ~~(10)~~ of claim 1, wherein the fuel source ~~(20)~~ is configured to supply the first fuel at a first pressure and the second fuel at a second pressure different than the first pressure.

3. The system ~~(10)~~ of ~~claim~~ 1, wherein the ~~automation controller (28) is~~at least one input device comprises at least one sensor configured to ~~operate~~monitor the one or more ~~actuators (158) to:~~

~~regulate a first supply pressure of~~environmental factors affecting the ~~first fuel; and~~

~~regulate a second supply pressure~~aesthetic of the ~~second fuel~~flame effect, and the data comprises an input from the at least one sensor.

4. The system ~~(10)~~ of ~~claim~~ 1, wherein the one or more environmental factors affecting the aesthetic of the flame effect comprise environmental brightness, flame brightness, weather, time of day, humidity, wind conditions, or a combination thereof.

5. The system ~~(10)~~ of ~~claim~~ 1, wherein the at least one input device comprises a communication system configured to supply information related to the one or more environmental factors affecting the aesthetic of the flame effect, wherein the data comprises an input from the communication system.

6. The system of claim 1, wherein the automation controller is configured to control the burner to cause the burner to ignite the first fuel, the second fuel, or both to generate the flame effect.

7. The system of claim 1, wherein the first chemical composition comprises one of propane, natural gas, butane, ethane, or hydrogen, and wherein the second chemical composition comprises a different one of propane, natural gas, butane, ethane, or hydrogen than the first chemical composition.

8. The system of claim 1, wherein the data indicative of the environmental factors affecting the aesthetic of the flame effect comprises data indicative of environmental brightness.

9. A system, comprising:

a nested nozzle assembly configured to generate a flame effect visible from an exterior of the system, wherein the nested nozzle assembly comprises a first nozzle, a second nozzle disposed radially inward from the first nozzle, and a burner positioned proximate to an end of the nested nozzle assembly;

a fuel source having a first fuel tank configured to store a first fuel comprising a first chemical composition and having a second fuel tank configured to store a second fuel comprising a second chemical composition different than the first chemical composition; and

an automation controller configured to regulate the fuel source or a control valve assembly of the system to control a fluid flow of the first fuel and the second fuel to the nested nozzle assembly based at least in part on an environmental factor surrounding the system that affects an aesthetic of the flame effect, wherein the automation controller is configured to regulate the fuel source or the control valve assembly to fluidly couple the first fuel tank with the first nozzle and the second fuel tank with

the second nozzle in response to a first value of the environmental factor surrounding the system that affects the aesthetic of the flame effect, wherein the automation controller is configured to regulate the fuel source or the control valve assembly to fluidly couple the first fuel tank with the second nozzle and the second fuel tank with the first nozzle in response to a second value of the environmental factor surrounding the system that affects the aesthetic of the flame effect, and wherein the automation controller is configured to regulate the burner to ignite the first fuel and the second fuel as the first fuel and the second fuel exit the end of the nested nozzle assembly.

10. The system of claim 9, wherein at least a first portion of the first nozzle is disposed within at least a second portion of the second nozzle such that an outer surface of a wall that defines an inner flow path of the first nozzle defines an outer flow path of the second nozzle, wherein the first portion of the first nozzle is axially symmetric, planar symmetric, or both with the second portion of the second nozzle.

11. The system of claim 9, comprising a sensor ~~(38)~~ configured to measure the environmental ~~factors, a communication~~ factor surrounding the system ~~(37) configured~~that affects the aesthetic of the flame effect, and to ~~supply the~~provide data indicative of the environmental ~~factors, or a combination thereof.~~ factor surrounding the system that affects the aesthetic of the flame effect to the automation controller.

12.

~~6.~~ The system ~~(10)~~ of- claim ~~1, wherein the at least one actuator (158) operates to actuate~~9, comprising an ~~ignition device (18)~~Internet system configured to provide data indicative of the ~~system (10).~~

~~7. The system (10) of claim 1, wherein~~environmental factor surrounding the system that affects the ~~two or more separate types of fuel comprise two or more of propane, natural gas, butane, ethane, hydrogen, or other combustible material normally existing in a vapor state at standard temperature and pressure.~~ aesthetic of the flame effect to the automation controller.

~~8~~13. The system of ~~Claim 7~~ claim 9, wherein the ~~first fuel provided to~~environmental factor surrounding the ~~outer nozzle (16)~~system that affects the aesthetic of the flame effect comprises ~~propane and the second fuel provided to the inner nozzle (~~environmental brightness.

~~14) comprises natural gas.~~

~~9.~~ 14. A method of operating a nested nozzle system ~~(10)~~configured to generate a flame effect ~~(17),~~ the method comprising:

determining environmental factors ~~of an environment (40)~~ around the ~~system (10);~~ nested nozzle system that affect an aesthetic of the flame effect;

~~fluidly coupling a first type of fuel from a fuel source (20) comprising two or more separate fuel types with a first nozzle (14) and a second type of fuel from the fuel source (20) with a second nozzle (16), wherein the first type of fuel and the second type of fuel are selected from the two or more separate types of fuel based on an analysis, by an automation controller (28), of data indicative of the environmental factors;~~

determining, via an automation controller, a first type of fuel to route to a first nested nozzle of the nested nozzle system, a second type of fuel to route to a second nested nozzle of the nested nozzle system, a first pressure corresponding to the first type of fuel, and a second pressure corresponding to the second type of fuel based on measurements or values of the environmental factors received by the automation controller, the first type of fuel having a first chemical composition and the second type of fuel having a second chemical composition different than the first chemical composition;

fluidly coupling a first fuel tank having the first type of fuel with the first nested nozzle of the nested nozzle system and a second fuel tank having the second type of fuel with the second nested nozzle of the nested nozzle system;

passing the first type of fuel through the first nested nozzle ~~(14)~~ at ~~a~~the first pressure and the second type of fuel through the second nested nozzle ~~(16)~~ at ~~a~~the second pressure; and

passing the first type of fuel and the second type of fuel over ~~an ignition feature (18),~~a burner such that the first type of fuel and the second type of fuel ~~ignite~~are ignited by the burner to generate the flame effect ~~(17) which is~~ visible from an exterior of the nested nozzle system ~~(10).~~

~~10.~~ 15. The method of ~~claim 9, wherein the first pressure, the second pressure, or a combination thereof are determined based on an analysis, by the automation controller (28), of the data indicative of the environmental factors.~~ claim

~~11. The method of claim 9~~14, wherein the first nozzle ~~(14)~~ comprises at least a first portion of the first nozzle ~~(14)~~ that is nested within at least a second portion of the second nozzle ~~(16).~~ such that the first portion is axially symmetric, planar symmetric, or both with the second portion.

~~12. The~~16. The method of claim 14, wherein determining environmental factors around the nested nozzle system that affect the aesthetic of the flame effect comprises determining a first factor indicative of environmental brightness, and wherein the measurements or values of the environmental factors

received by the automation controller comprise measurements or values indicative of the environmental brightness.

17. A method of ~~claim 9, comprising~~ operating a nested nozzle system having a first nozzle and a second nozzle disposed radially inward from the first nozzle, the method comprising:

determining an environmental factor around the nested nozzle system that affects an aesthetic of a flame effect generated by the nested nozzle system;

fluidly coupling, via an automation controller, a first fuel tank storing a first type of fuel with the first nozzle and a second fuel tank storing a second type of fuel with the second nozzle in response to a first measurement or first value indicative of the environmental factor around the nested nozzle system that affects the aesthetic of the flame effect, wherein the first type of fuel comprises a first chemical composition and the second type of fuel comprises a second chemical composition different than the first material composition;

passing ~~a third~~the first type of fuel through ~~a third nozzle (120) in which the first and second nozzles (14, 16)~~the first nozzle at a first pressure and the second type of fuel through the second nozzle after fluidly coupling the first fuel tank with the first nozzle and the second fuel tank with the second nozzle;

passing the first type of fuel and the second type of fuel over a burner disposed at ends of the first nozzle and the second nozzle after passing the first type of fuel through the first nozzle and the second type of fuel through the second nozzle such that the first type of fuel and the second type of fuel are ignited by the burner to generate the flame effect visible from an exterior of the nested nozzle system;

fluidly coupling, via the automation controller, the second fuel tank storing the second type of fuel with the first nozzle and the first fuel tank storing the first type of fuel with the second nozzle in response to a second measurement or second value indicative of the environmental factor around the nested nozzle system that affects the aesthetic of the flame effect;

passing the second type of fuel through the first nozzle and the first type of fuel through the second nozzle after fluidly coupling the second fuel tank with the first nozzle and the first fuel tank with the second nozzle; and

passing the first type of fuel and the second type of fuel over the burner disposed at the ends of the first nozzle and the second nozzle after passing the second type of fuel through the first nozzle and the first type of fuel through the second nozzle such that the first type of fuel and the second type of fuel are ~~nested.~~ignited by the burner to generate the flame effect visible from the exterior of the nested nozzle assembly.

18. The method of claim 17, wherein determining the environmental factor around the nested nozzle system that affects the aesthetic of the flame effect generated by the nested nozzle system comprises determining an environmental brightness.

19. A system, comprising:

an outer housing structure;

a fluid source having a first fluid tank configured to store a first fluid having a first chemical composition and a second fluid tank configured to store a second fluid having a second chemical composition different than the first chemical composition;

a nested nozzle assembly having a first nested nozzle, a second nested nozzle disposed radially inward from the first nested nozzle, and a burner, wherein the nested nozzle assembly is configured to flow the first fluid and the second fluid therethrough and over the burner to facilitate generation of a flame effect from an outlet of the nested nozzle assembly, wherein the nested nozzle assembly is positioned at least partially within the outer housing structure such that the nested nozzle assembly is at least partially hidden within the outer housing structure and such that the outlet of the nested nozzle assembly is positioned proximate to an opening in the outer housing structure, wherein the opening in the outer housing structure is configured to expose the flame effect external to the outer housing structure; and

an automation controller configured to receive first data indicative of an environmental factor that affects an aesthetic of the flame effect, to control the fluid source or a control valve assembly of the system to direct the first fluid into the first nested nozzle and the second fluid into the second nested nozzle in response to the first data, to receive second data indicative of the environmental factor that affects the aesthetic of the flame effect, and to control the fluid source or the control valve assembly of the system to direct the first fluid into the second nested nozzle and the second fluid into the first nested nozzle in response to the second data.

20. The system of claim 19, wherein the first data indicative of the environmental factor that affects the aesthetic of the flame effect comprises data indicative of a first environmental brightness data, and wherein the second data indicative of the environmental factor that affects the aesthetic of the flame effect comprises data indicative of a second environmental brightness data.