

controller devices, ability to accommodate dynamic inputs and/or generate dynamic output may be desirable. Configuring and programming controller devices to accommodate dynamic inputs or outputs requires writing or rewriting the code for all controller devices, and is very challenging for average users because one needs to understand hierarchies of the peripherals and suitable controller devices for the peripherals, memorize coding commands, utilize proper calling syntaxes, and the like. In the absence of accurate code, a program will fail to run or produce errors. Further, rewriting programs every time a modification in input or output is required, can be cumbersome and excessively time consuming.

[0005] As the "Internet of Things (IoT)" grows, more and more such controller devices are connected to one another and/or to the Internet. Groups of such devices may communicate with one another and/or to a gateway such that the gateway becomes a proxy for the Internet communications for the so-called edge devices. The edge devices may communicate through one or more gateways, or directly as independent devices. Within a group, all the devices (gateway and edge) must be programmed in a compatible manner to facilitate interoperability. Managing compatibility every time customization is required may also be excessively time consuming.

[0006] Thus, there is a need in the art for creating and managing controller based remote solutions.

SUMMARY OF THE INVENTION

[0007] Embodiments of the present invention generally relate to a method and apparatus for creating and managing controller based remote solutions, substantially as shown in and/or described in connection with at least one of the figures, as set forth more completely in the claims.

[0007a] According to a first aspect of the present invention, there is provided a computer-implemented method for creating a controller based remote solution, including: receiving, at a code virtualization server (CVS), via a graphical user interface (GUI) of a user device remote to the CVS, at least one of a selection of a blank template in which a controller device is selected, and a solution corresponding to a conventional system is built via the GUI, or a selection of a pre-defined solution including a controller device installed in a conventional system, the controller device

operable to monitor and control the conventional system, wherein the controller device and the conventional system are remote to the user device and the CVS; receiving, via the GUI, at the CVS, at least one parameter of the selected solution, the at least one parameter including at least one of a monitored parameter of the conventional system, a condition for the monitored parameter, or a remote program parameter for executing a remote program, wherein the remote program is executed remote to the user device and the controller device; generating, on the CVS, an automatically generated controller program (AGCP) for execution by the controller device, the AGCP including a call for executing the remote program based on the condition being met; and sending the AGCP for installation on the controller device.

[0007b] According to a second aspect of the present invention, there is provided an apparatus for a controller based remote solution, including: at least one processor; and a memory including executable instructions, which when executed using the at least one processor, cause execution of a method including: receiving, at a code virtualization server (CVS), via a graphical user interface (GUI) of a user device remote to the CVS, at least one of a selection of a blank template in which a controller device is selected, and a solution corresponding to a conventional system is built via the GUI, or a selection of a pre-defined solution including a controller device installed in a conventional system, the controller device operable to monitor and control the conventional system, wherein the controller device and the conventional system are remote to the user device and the CVS, receiving, via the GUI, at the CVS, at least one parameter of the selected solution, the at least one parameter including at least one of a monitored parameter of the conventional system, a condition for the monitored parameter, or a remote program parameter for executing a remote program, wherein the remote program is executed remote to the user device and the controller device, generating, on the CVS, an automatically generated controller program (AGCP) for execution by the controller device, the AGCP including a call for executing the remote program based on the condition being met, and sending the AGCP for installation on the controller device.

[0008] These and other features and advantages of the present disclosure may be appreciated from a review of the following detailed description of the present