

Claims:

1. A method for control system optimization, the method comprising:
 - retrieving from an engineering information repository, control system engineering information corresponding to an implemented control system;
 - based on the retrieved control system engineering information, identifying a plurality of function blocks and function block interconnections corresponding to the implemented control system, wherein:
 - identified function blocks comprise code defining at least one of an input function, an output function or a control function associated with a hardware component within the implemented control system; and
 - each function block interconnection defines a relationship between identified function blocks;
 - identifying at least one group of function blocks from ~~among~~ within the identified plurality of function blocks corresponding to the implemented control system, wherein:
 - identification of the group of function blocks is based on identification of one or more attributes shared by each function block within the identified group of function blocks;
 - and
 - the identified group of function blocks includes some but not all function blocks within the identified plurality of function blocks corresponding to the implemented control system;
 - and
 - generating a control system topology based on the identified function blocks, identified function block interconnections, and identified group of function blocks, wherein generating the control system topology comprises including within a data structure corresponding to the implemented control system:
 - information defining the identified plurality of function blocks;
 - information defining the identified function block interconnections; and
 - grouping information corresponding to the identified group of function blocks,
 - wherein:

the grouping information enables identification of members of the identified group of function blocks from among the identified plurality of function blocks; and the grouping information is distinct from the information defining the identified plurality of function blocks and the information defining the identified function block interconnections.

2. The method as claimed in claim 1, comprising responding to detection of a first event within a process environment associated with the implemented control system by:

identifying a first function block within the implemented control system, wherein the identified first function block is related to the detected first event;

identifying a second function block within the implemented control system, wherein the identified second function block is related to the identified first function block; and

displaying one or more event notifications at a user interface, wherein the displayed one or more event notifications include information corresponding to both the first function block and the second function block;

wherein identification of the second function block is based on at least one of function block interconnection information or function block group information retrieved from the control system topology.

3. The method as claimed in claim 1, wherein the control system engineering information comprises information retrieved from one or more of engineering documents, system specifications, control drawings, logic charts, sequence tables or interlock tables.

10. The method as claimed in claim 2, wherein the detected first event is independent of the identified second function block.

11. The method as claimed in claim 2, wherein displaying one or more event notifications at the user interface includes displaying an event notification corresponding to a detected second event, wherein the detected second event relates to the identified second function block.

12. A system for control system optimization, the system comprising:

one or more controllers;

a plurality of field devices;

a processor configured to:

retrieve from an engineering information repository, control system engineering information corresponding to an implemented control system;

based on the retrieved control system engineering information, identify a plurality of function blocks and function block interconnections corresponding to the implemented control system, wherein:

identified function blocks comprise code defining at least one of an input function, an output function or a control function associated with a hardware component within the implemented control system; and

each function block interconnection defines a relationship between identified function blocks;

identify at least one group of function blocks from ~~among~~ within the identified plurality of function blocks corresponding to the implemented control system, wherein:

identification of the group of function blocks is based on identification of one or more attributes shared by each function block within the identified group of function blocks; and

the identified group of function blocks includes some but not all function blocks within the identified plurality of function blocks corresponding to the implemented control system;

and

a topology generator configured to generate a control system topology based on the identified function blocks, identified function block interconnections, and identified group of function blocks, wherein generating the control system topology comprises including within a data structure corresponding to the implemented control system:

information defining the identified plurality of function blocks;

information defining the identified function block interconnections; and

grouping information corresponding to the identified group of function blocks,

wherein:

the grouping information enables identification of members of the identified group of function blocks from among the identified plurality of function blocks; and

the grouping information is distinct from the information defining the identified plurality of function blocks and the information defining the identified function block interconnections.

13. The system as claimed in claim 12, further comprising a process monitor configured such that, responsive to detection of a first event within a process environment associated with the implemented control system, the process monitor:

location within a specific area or plant site or
being in network communication with other function blocks within the identified group of function blocks.

19. The system as claimed in claim 12, wherein the one or more attributes shared by each function block within the identified group of function blocks comprises inclusion of each said function block within a single interface screen, display window or display wireframe corresponding to a user interface within the implemented control system.

20. The system as claimed in claim 13, wherein the process monitor is configured such that the detected event is independent of the identified second function block.

21. The system as claimed in claim 13, wherein the process monitor is configured such that displaying one or more event notifications at the user interface includes displaying an event notification corresponding to a detected second event, wherein the detected second event relates to the identified second function block.

22. The system as claimed in claim 12, wherein generating the control system topology is additionally based on function block interconnections derived from component interconnections within the implemented control system, and wherein the component interconnections are extracted from plant configuration information corresponding to the implemented control system.

23. A computer program product for control system optimization, comprising a non-transitory computer usable medium having a computer readable program code embodied therein, the computer readable program code comprising instructions for:

retrieving from an engineering information repository, control system engineering information corresponding to an implemented control system;

based on the retrieved control system engineering information, identifying a plurality of function blocks and function block interconnections corresponding to the implemented control system, wherein:

identified function blocks comprise code defining at least one of an input function, an output function or a control function associated with a hardware component within the implemented control system; and

each function block interconnection defines a relationship between identified function blocks;

identifying at least one group of function blocks from ~~among~~ within the identified plurality of function blocks corresponding to the implemented control system, wherein:

identification of the group of function blocks is based on identification of one or more attributes shared by each function block within the identified group of function blocks; and

the identified group of function blocks includes some but not all function blocks within the identified plurality of function blocks corresponding to the implemented control system;

and

generating a control system topology based on the identified function blocks, identified function block interconnections, and identified group of function blocks, wherein generating the control system topology comprises including within a data structure corresponding to the implemented control system:

information defining the identified plurality of function blocks;

information defining the identified function block interconnections; and

grouping information corresponding to the identified group of function blocks,
wherein:

the grouping information enables identification of members of the identified group of function blocks from among the identified plurality of function blocks; and

the grouping information is distinct from the information defining the identified plurality of function blocks and the information defining the identified function block interconnections.