GENERIC CONTROL SYSTEM, APPARATUS OR PROCESS

- Plural processors
- Master-slave
- Parallel
- Hybrid types (analog, digital)
- Including sequence or logic processor
- Cascade control
- Supervisory control
- Of analog controllers
- Sequential or selective
- State of condition or parameter (e.g., on/off)
- Position responsive
- Time responsive (duration)
- Having display
- Clock-calendar (e.g., time of day)
- Operator interface (e.g., display with control)
- Specific programming (e.g., relay or ladder logic)
- Plural controlled systems, mechanisms, or elements
- Plural controllers
- Failure protection or reliability
- Electrical power distribution
- Sequence program response
- Addressing
- I/O table
- Diagnostics or debugging
- Having status indication
- Optimization or adaptive control
- Having model
- Comparison with model (e.g., model reference)
- Having adjustment of model (e.g., update)
- Specific criteria of system performance
- Constraint or limit (e.g., max/min)
- Variable
- Bidirectional (e.g., oscillatory)
- Economic (e.g., cost)
- Gain (e.g., tuning)
- Having perturbation
- Test signal
- Plural modes

Proportional-Integral (P-I)
Proportional-Integral-Derivative (P-I-D)
Proportional-Derivative (P-D)
Feed-forward (e.g., predictive)
Combined with feedback
Rate control
Trainable system (e.g., self-learning, self-organizing)
Neural network
Expert system
Fuzzy logic
Statistical process control (SPC)
Parameter estimation or identification
Multiple input-multiple output (MIMO) system feature (e.g., decoupling)
Having particular compensation or stabilization feature
Filtering
Digital positioning (other than machine tool)
Alignment or registration
Having position marking
Having optical sensing (e.g., image projection)
Support positioning (e.g., table, stage)
Multiple axis motion or path control
Orientation (e.g., posture, pose)
Including velocity or acceleration control
Position recording
Operator control of remotely located element
Having particular position determining apparatus (e.g., portable or handheld)
Plural variables
Ratio
Positional (e.g., velocity, acceleration)
Positional with nonpositional
Specific compensation or stabilization feature
Lag (e.g., deadtime)
Sampled data system
Variable rate
CLASS 700 DATA PROCESSING: GENERIC CONTROL SYSTEMS OR SPECIFIC APPLICATIONS

Multiple modes (e.g., digital/analog)
Manual/automatic
Fine/coarse
Having specific error signal generation (e.g., up/down counter)
Having protection or reliability feature
Warning or alarm
Backup/standby
Having operator control interface (e.g., control/display console)
Keyboard
Positional (e.g., joystick)
Having preparation of program
Editing/modifying
Playback
Having specific algorithm

SPECIFIC APPLICATION, APPARATUS OR PROCESS
Contest or contestant analysis, management, or monitoring (e.g., statistical analysis, handicapping, scoring)
Scoring
Probability determination or handicapping
Digital audio data processing system
Product assembly or manufacturing
Integrated system (Computer Integrated Manufacturing (CIM))
Design or planning
3-D product design (e.g., solid modeling)
Resource allocation
Job scheduling
Priority ordering
Job release determination
Constraints or rules
Knowledge based (e.g., expert system)
Rework or engineering change
Material requirement
Bill of material
Performance monitoring
Quality control
Defect analysis or recognition
Worker or work station efficiency
Having particular work transport control between manufacturing stations
Mobile transport
Work positioning
Product tracking (e.g., having product or carrier identification)
Having identification controlled manufacturing operation
Particular manufactured product or operation
Three-dimensional product forming
Rapid prototyping (e.g., layer-by-layer, material deposition)
Stereolithography
Integrated circuit production or semiconductor fabrication
Continuous material having indeterminate length (e.g., web, strand, strip, or sheet)
Material deposition or application (e.g., spraying, coating)
Registration control
Having a reference mark or pattern
Winding
Sheet making (e.g., paper product)
Paper machine or subsystem control
Profile analyzer or controller
Textile
Pattern design
For a garment
Having particular pattern producing operation (e.g., dyeing)
Pattern cutting
Pattern matching or positioning
Sewing
Having particular input data (e.g., stitch)
Embroidering
Spinning or winding (e.g., yarn)
140 ....Loom control
141 ....Knitting
142 ....Fiber preparation
143 ....Having monitoring or inspecting (e.g., abnormality detection)
144 ....Yarn quality
145 ....Metal
146 ....Casting or drawing
147 ....Control of metallurgical property
148 ....Rolling
149 ....Having schedule adjustment
150 ....Control or detection of a particular condition
151 ....Speed control
152 ....Tension control (e.g., interstrand)
153 ....Temperature control
154 ....Flatness or crown control
155 ....Thickness control
156 ....Roll eccentricity compensation
157 ...Glassware forming
158 ....IS (individual section) machine
159 ...Machining
160 ....Having particular tool or tool operation
161 ....Tracing or duplicating
162 ....Electrical discharge machining (EDM)
163 ....3-D sculpturing using nontracing prototype sensor
164 ....Grinding
165 ....Bending (e.g., press brake)
166 ....Laser
167 ....Of elongated material (e.g., timber, veneer, web)
168 ....Portable (e.g., handheld)
169 ....Supervisory control (e.g., plural tools or plural processors)
170 ....Having particular control of a motor parameter
171 ....Material usage optimization
172 ....Multiple mode (e.g., rough-finish, coarse-fine)
173 ....Adaptive (optimizing) system
174 ....Performance monitoring
175 ....Condition of tool or workpiece (e.g., tolerance, tool wear)
176 ....Offsetting
177 ....Protective or diagnostic feature
178 ....Tool/workpiece interference prevention
179 ....Tool selection/change
180 ....Having operator interface feature
181 ....Specific programming format (e.g., macro)
182 ....Including CAD, CAM, or CIM technique
183 ....Preset pattern
184 ....Machining path display
185 ....Prompting technique
186 ....Digital positioning technique
187 ....For curve or contour
188 ....Including velocity or acceleration control
189 ....Interpolation
190 ....Specified tool feed path at entry or withdrawal
191 ....Repeated machining passes
192 ....Alignment of tool or workpiece (e.g., origin or path return)
193 ....Positional compensation or modification compensation or mod
194 ....Coordinate transformation technique
195 ....Having particular measuring device (e.g., probe)
196 ....Extruding
197 ...Molding
198 ....Control of curing
199 ....Vulcanization
200 ....Injection
201 ....Plural molding machines or stations
202 ....Control of temperature
203 ....Control of pressure
204 ....Monitoring, inspection, or control of a particular condition
205 ....Control of temperature
206 ....Pressing
207 ....Heating
208 ....Drying
209 ....Furnace
210 ....Multizone
211 ....Oven
212 ....Sintering, soldering, or bonding
213 .Article handling
..Article storing, retrieval, or arrangement (e.g., warehousing, automated library)  
...Having an identification code  
...Order filling  
...Article support load management (e.g., palletizing)  
...Particular charging or discharging apparatus  
...Associating or disassociating plural articles  
...Inserting  
...Having an identification code  
...Monitoring or inspection (e.g., incomplete assembly)  
...Collating or sorting  
...Having an identification code  
...Having an identification code  
...Identification code determines article destination  
...Preparation of an article for an identification code (e.g., printing, encoding)  
...Having particular transport between article handling stations  
...Transport position identification  
...Having a conveyor  
...Operator or payment initiated  
....Customized dispensed article (e.g., operator design)  
....Demonstration or duplication of article (e.g., software, video)  
....Printing on or of dispensed or vended article  
....Data collection or reporting (e.g., sales, inventory)  
....Authorization (e.g., password, time usage limit, personal identification number (PIN))  
....Price adjustment  
....Blending or mixing  
...Condition controlled dispensing (e.g., weight or volume)  
...Central control of plural dispensing units  
...Particular supply arrangement (e.g., plural sources or compartments)  
...Movable (e.g., rotatable)  
...Monitoring or inspection  
.Robot control  
..Combined with knowledge processing (e.g., natural language system)  
...Plural controlled devices or plural nonvision controlling devices  
...Plural robots  
...Plural processors  
..Specific enhancing or modifying technique (e.g., adaptive control)  
...Coordinate transformation  
...Interpolation  
...Programmed data (e.g., path) modified by sensed data  
...Compensation or calibration  
...Overload prevention  
...Based on user input  
...Having particular sensor  
...Vision sensor (e.g., camera, photocell)  
...Having control of force  
...Having control of robot torque  
...Using particular manipulator orientation computation (e.g., vector/matrix calculation)  
...Using Jacobian computation  
...Having particular operator interface (e.g., teaching box, digitizer, tablet, pendant, dummy arm)  
...Nonreactive mixing process (e.g., mixing cement, preparing solution, diluting chemical)  
...Chemical process control or monitoring system  
...Titration or pH level  
...Synthesis process  
...Polymerization/trimerization  
...Distillation  
...Refinement or purification or rejuvenation  
...Of fuel  
...Separation process  
...Control of combustion or heating apparatus (e.g., kiln, furnace, autoclave, burner, combustion system)  
.Mechanical control system  
..HVAC control
277 ...Multiple zones
278 ...Specific thermally responsive controller
279 ...Balancing or alignment
280 ...Vibration or acoustic noise control
281 ...Control of fluid level or volume
282 ...Flow control (e.g., valve or pump control)
283 ...Dispensing management (e.g., spraying)
284 ...Irrigation
285 ...Fluid mixing
286 ...Electrical power generation or distribution system
287 ...Turbine or generator control
288 ...Cogenerative system
289 ...Adaptive valve control
290 ...For turbine speed control
291 ...Energy consumption or demand prediction or estimation
292 ...System protection (e.g., circuit interrupter, circuit limiter, voltage suppressor)
293 ...Abnormal power, current, or impedance condition
294 ...Abnormal phase, waveform, or polarity condition
295 ...Power allocation management (e.g., load adding/shedding)
296 ...Time based control (e.g., real time or duty cycle)
297 ...Power supply regulation operation
298 ...By voltage regulation
299 ...Specific application of temperature responsive control system
300 ...For heating or cooling
301 ...Specific application of pressure responsive control system
302 ...Specific application of positional responsive control system
303 ...Specific application of dimensional responsive control system
304 ...Specific application of speed responsive control system
305 ...Specific application of weight responsive control system
306 ...Specific application of control based on elapsed time

CROSS-REFERENCE ART COLLECTIONS

900 SPECIAL ROBOT STRUCTURAL ELEMENT

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 101 SEQUENTIAL OR SELECTIVE DATA PROCESSING CONTROL SYSTEM, METHOD, OR APPARATUS (364/140)

FOR 102 OPTIMIZATION OR ADAPTIVE DATA PROCESSING CONTROL SYSTEM, METHOD, OR APPARATUS (364/148)

FOR 103 DIGITAL POSITIONING (OTHER THAN MACHINE TOOL) CONTROL SYSTEM, METHOD, OR APPARATUS (364/167.01)

FOR 104 GAME OR AMUSEMENT (364/410)

FOR 105 .Scoring (364/411)

FOR 106 .Wagering (364/412)