无线通信实验在线开放课程

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广东省教学质量工程建设项目

LabVIEW 通信编程

（Design Pattern）

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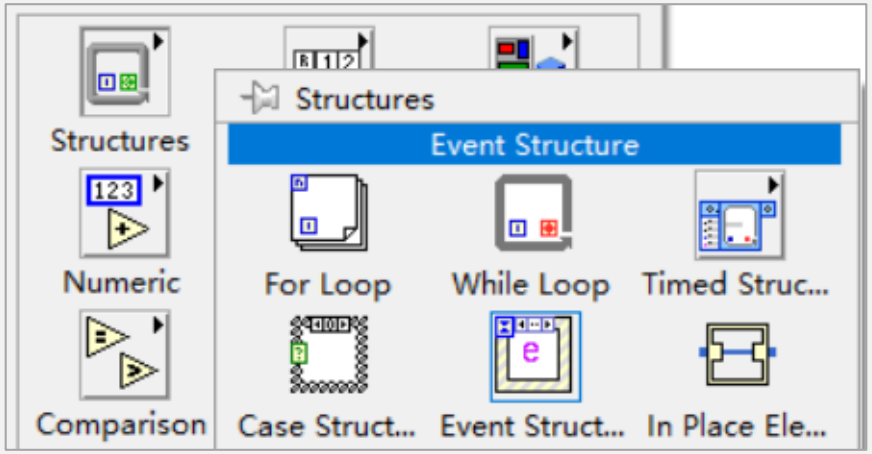
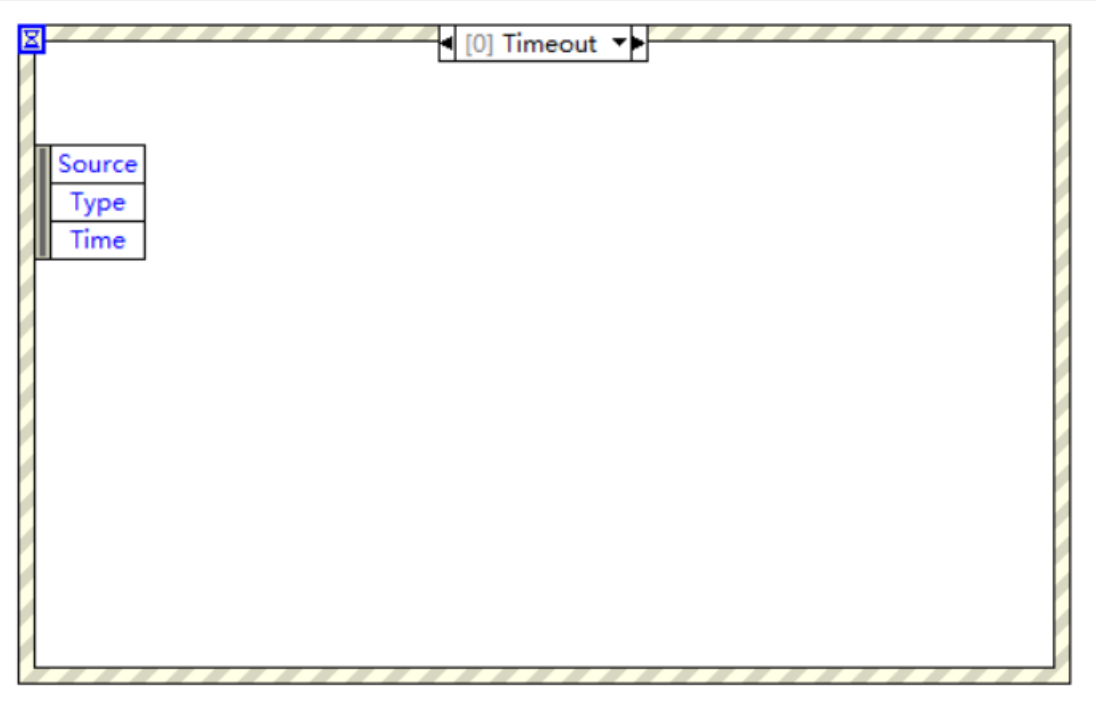
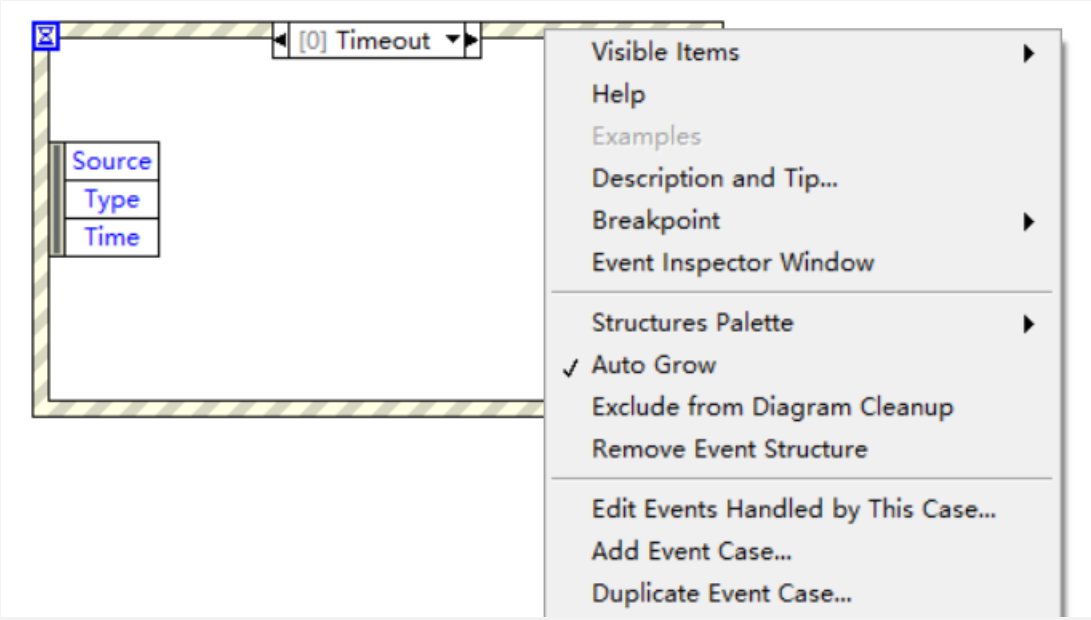
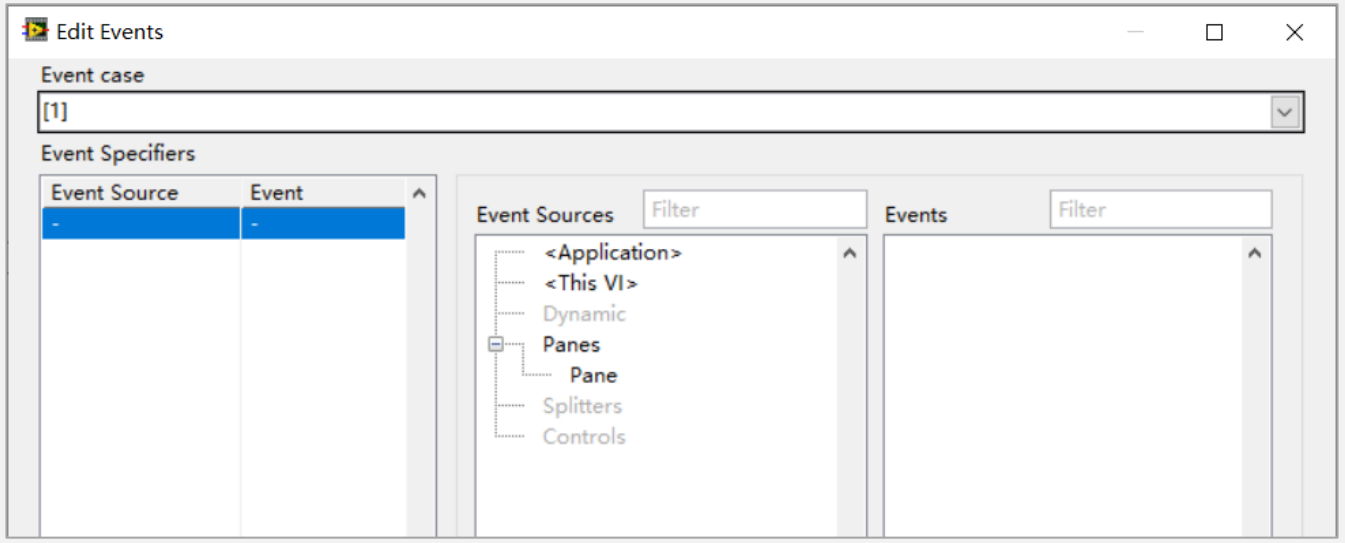
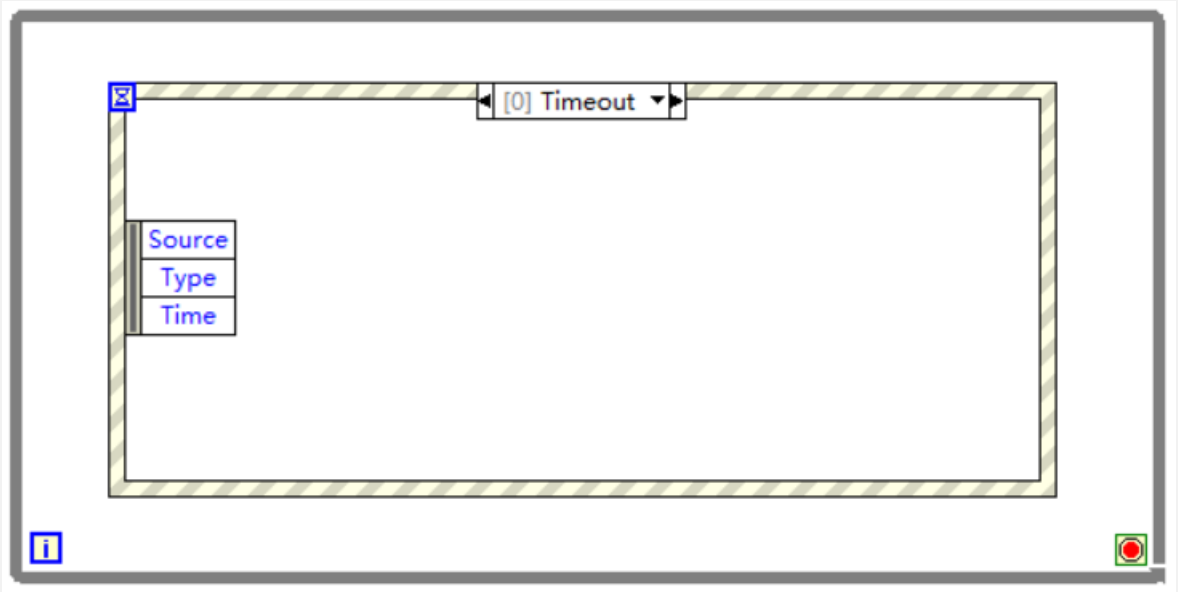
Project requirements	Design pattern
To capture user actions	User Interface Event Handler
To change sequence of events	Standard State Mache
To execute two parallel processes simultaneously	Producer-Consumer Design Pattern

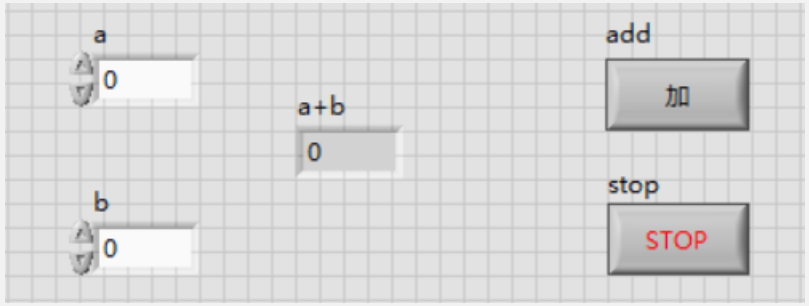

Structures
Numeric
Comparison
Structures
Event Structure
For Loop
While Loop
Timed Struc...
Case Struct...
Event Struct...
In Place Ele...

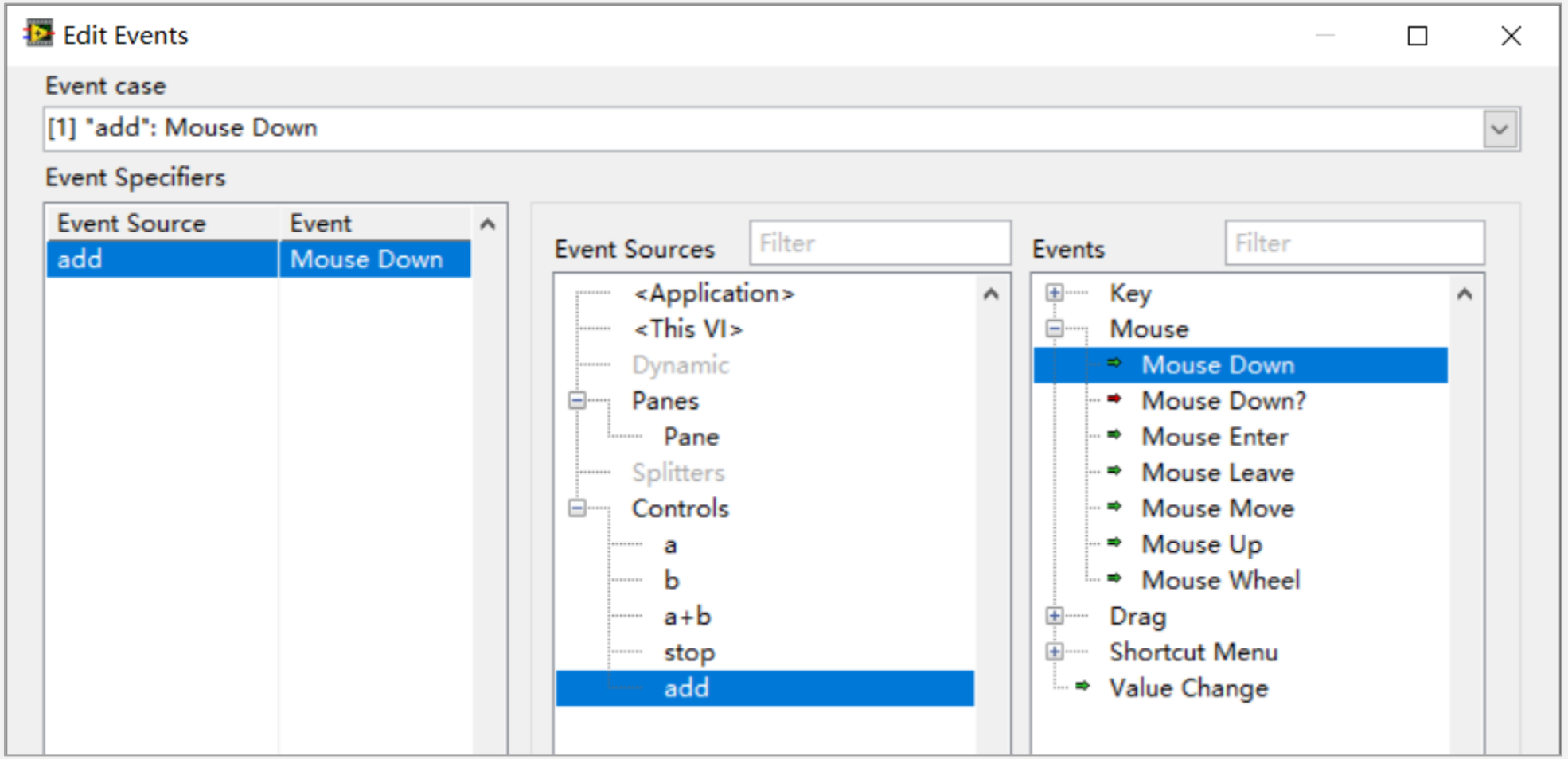

[0] Timeout
Source
Type
Time

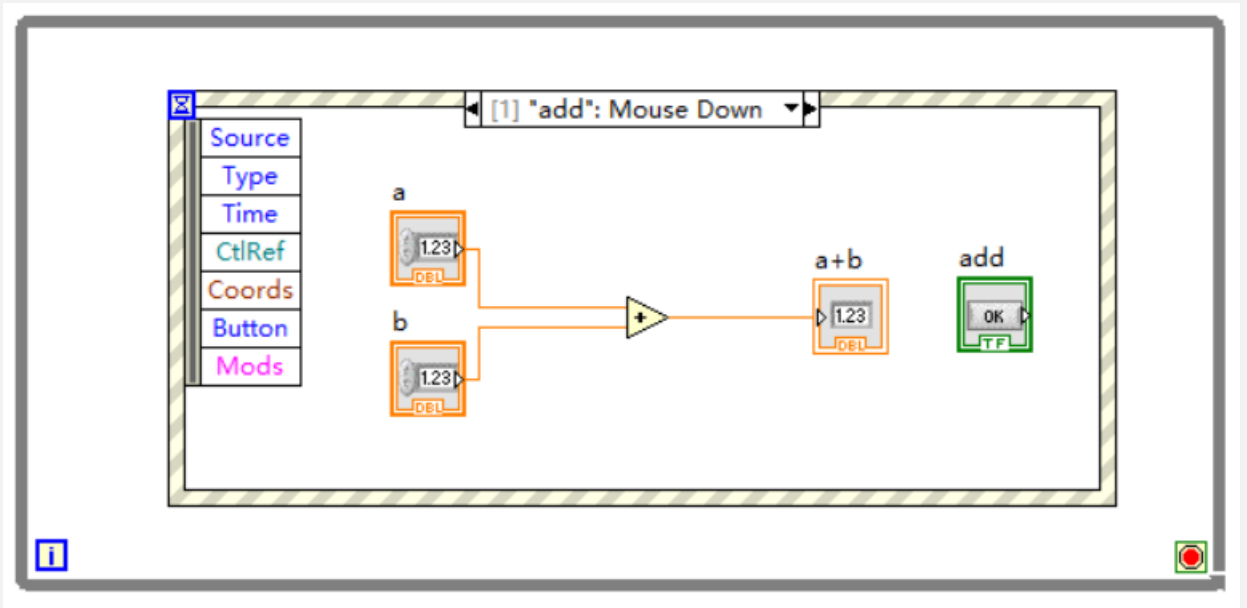

[0] Timeout
Source
Type
Time
Visible Items
Help
Examples
Description and Tip...
Breakpoint
Event Inspector Window
Structures Palette
Auto Grow
Exclude from Diagram Cleanup
Remove Event Structure
Edit Events Handled by This Case...
Add Event Case...
Duplicate Event Case...

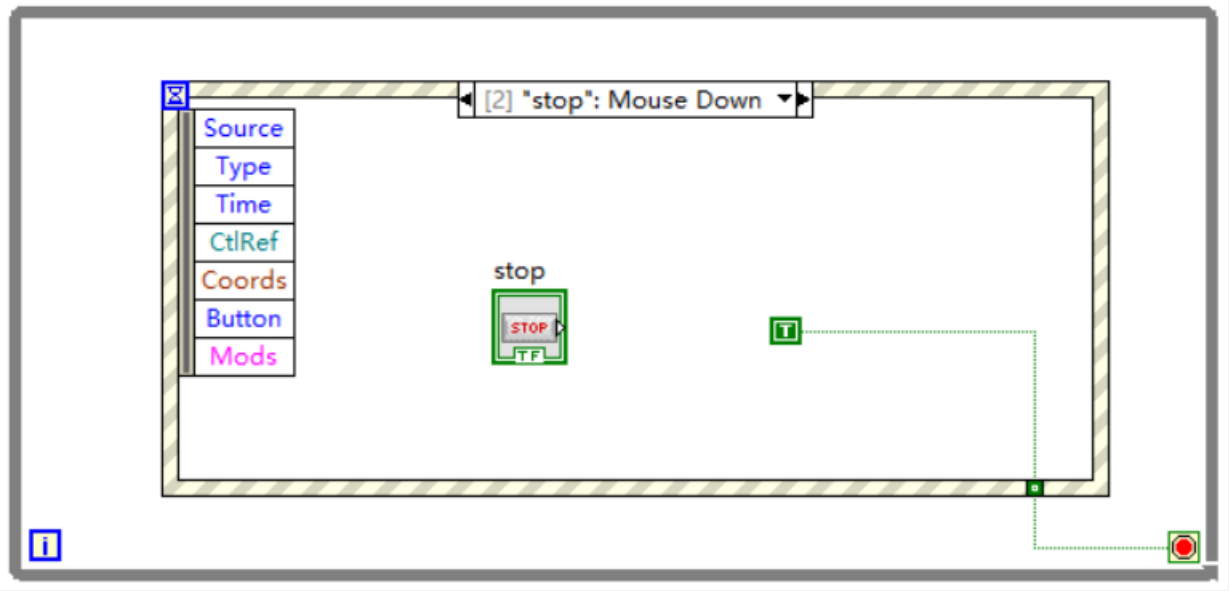

Edit Events
Event case
[1]
Event Specifiers
Event Source
Event
-
-
Event Sources
Filter
<Application>
<This VI>
Dynamic
Panes
Pane
Splitters
Controls
Events
Filter

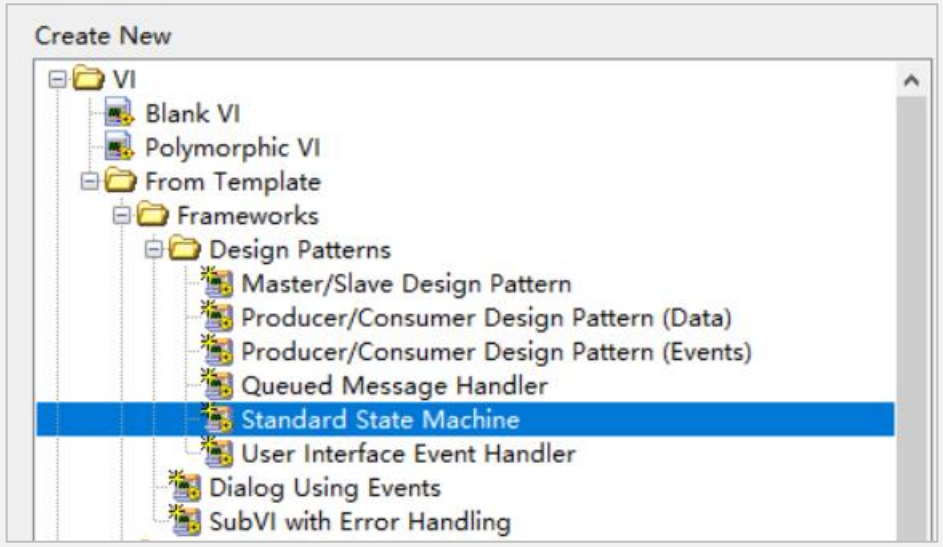

[0] Timeout
Source
Type
Time

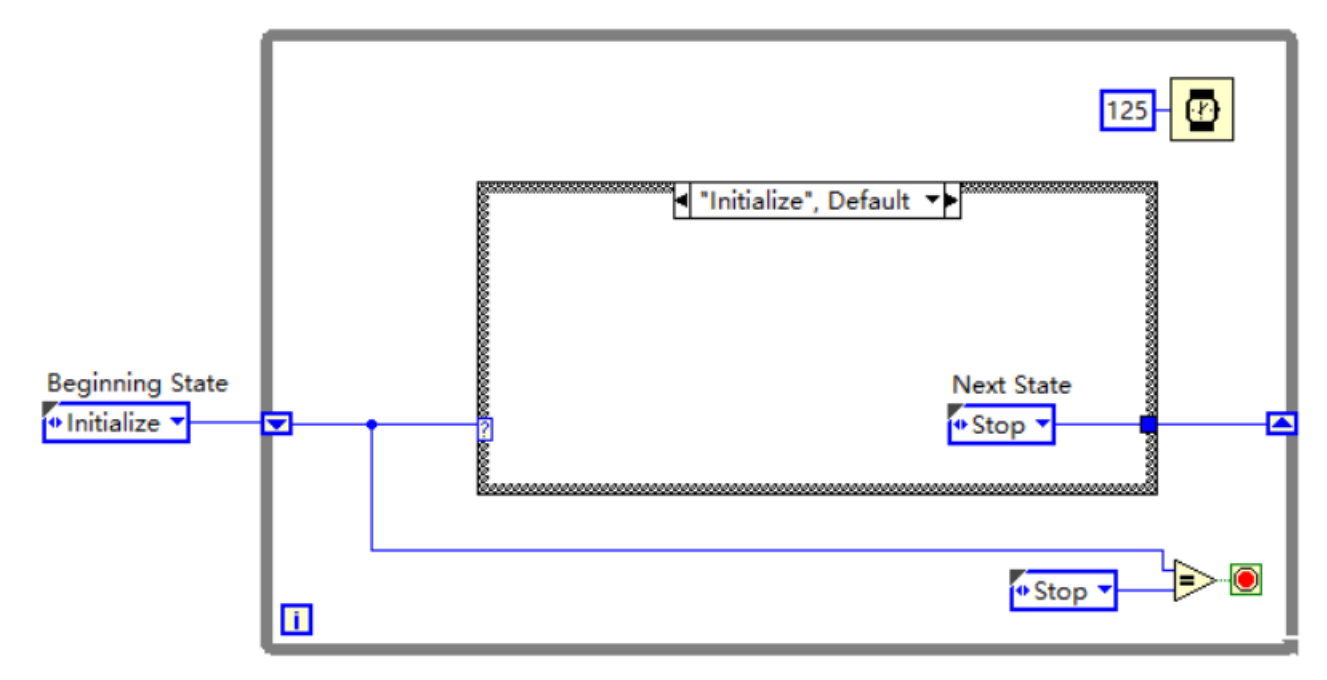

a
0
a+b
0
b
0
add
加
stop
STOP

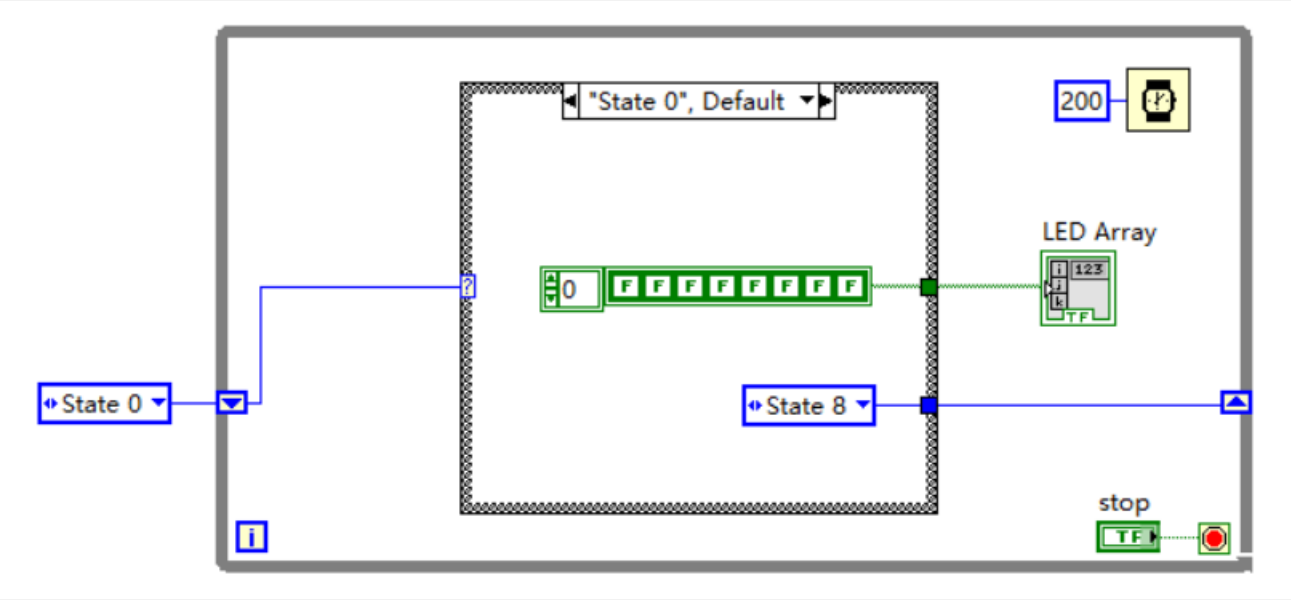

Edit Events
Event case
[1] "add": Mouse Down
Event Specifiers
Event Source
Event
add
Mouse Down
Event Sources
Filter
<Application>
<This VI>
Dynamic
Panes
Pane
Splitters
Controls
a
b
a+b
stop
add
Events
Filter
Key
Mouse
Mouse Down
Mouse Down?
Mouse Enter
Mouse Leave
Mouse Move
Mouse Up
Mouse Wheel
Drag
Shortcut Menu
Value Change


[1] "add": Mouse Down
Source
Type
Time
CtlRef
Coords
Button
Mods
a
b
1.23
DBL
a+b
add
OK
TF

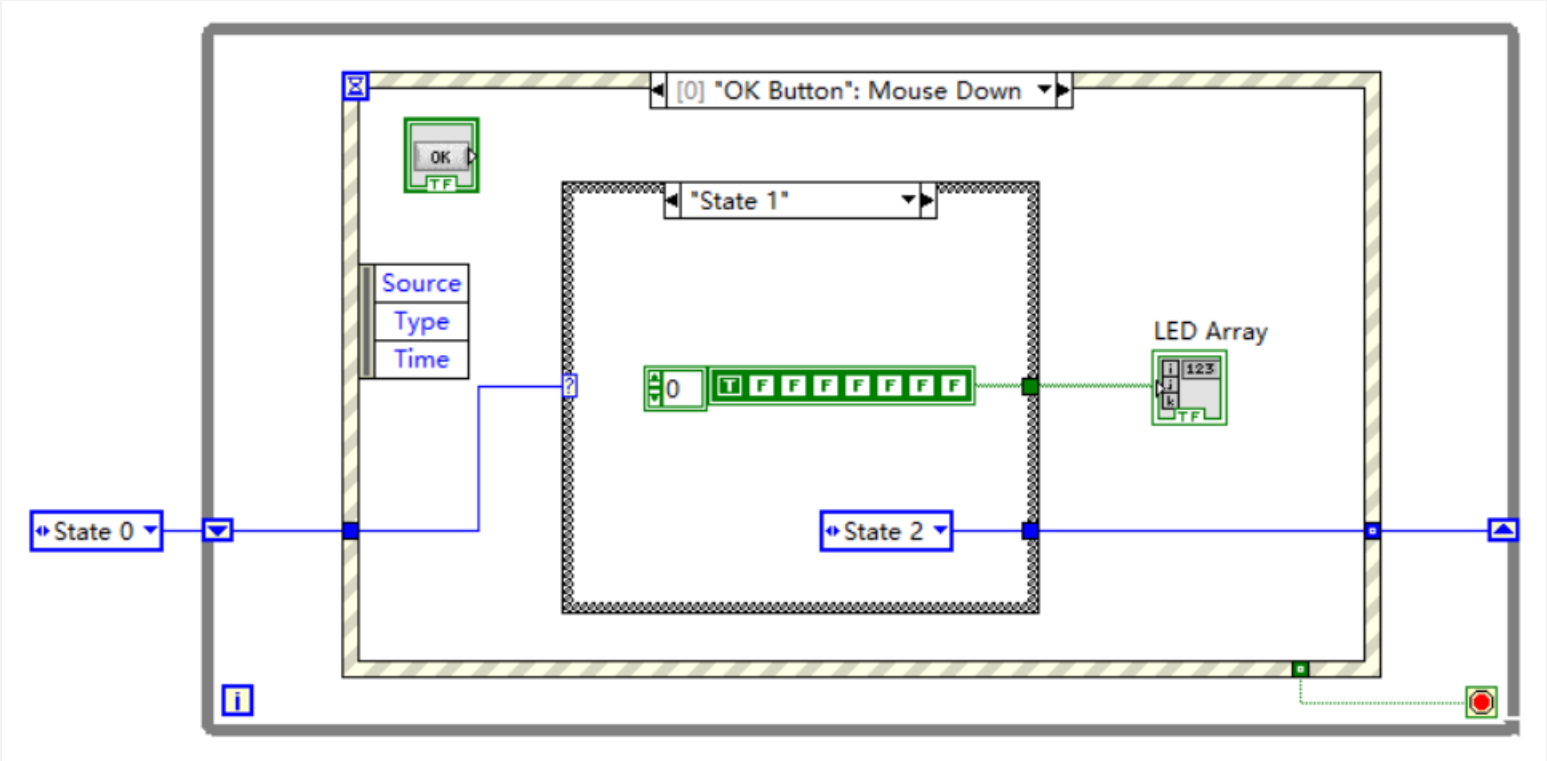

[2] "stop": Mouse Down
Source
Type
Time
CtlRef
Coords
Button
Mods
stop
STOP
TF

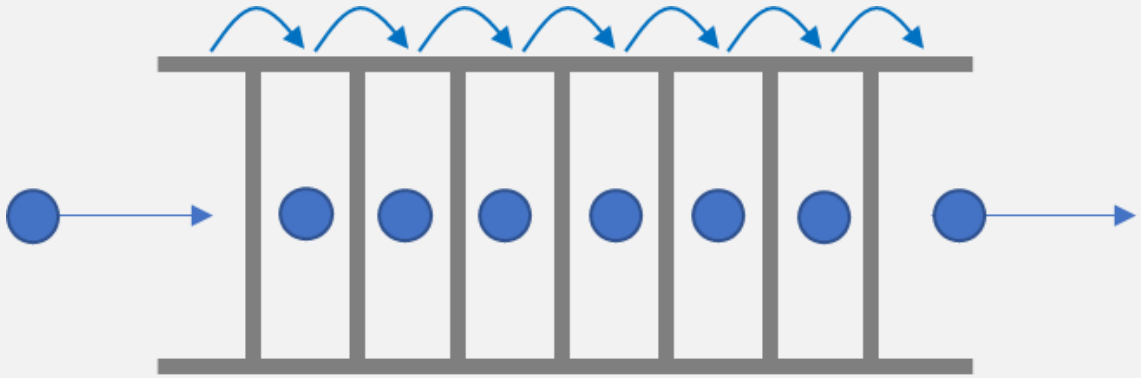

Create New
VI
Blank VI
Polymorphic VI
From Template
Frameworks
Design Patterns
Master/Slave Design Pattern
Producer/Consumer Design Pattern (Data)
Producer/Consumer Design Pattern (Events)
Queued Message Handler
Standard State Machine
User Interface Event Handler
Dialog Using Events
SubVI with Error Handling

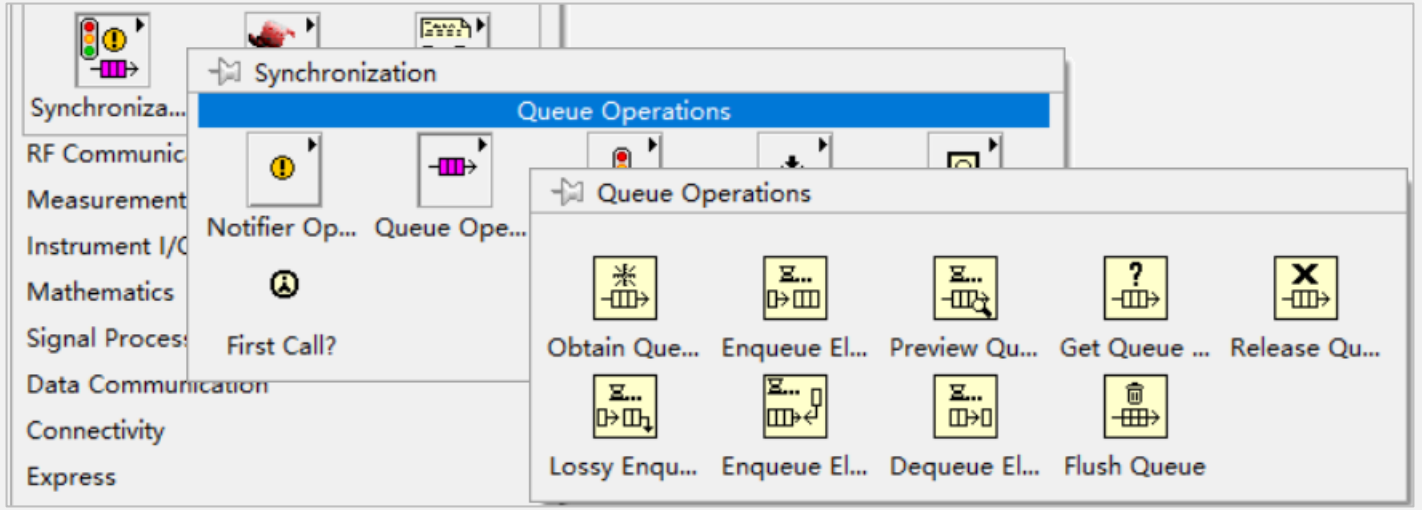

125
"Initialize", Default
Beginning State
Initialize
Next State
Stop
Stop
i

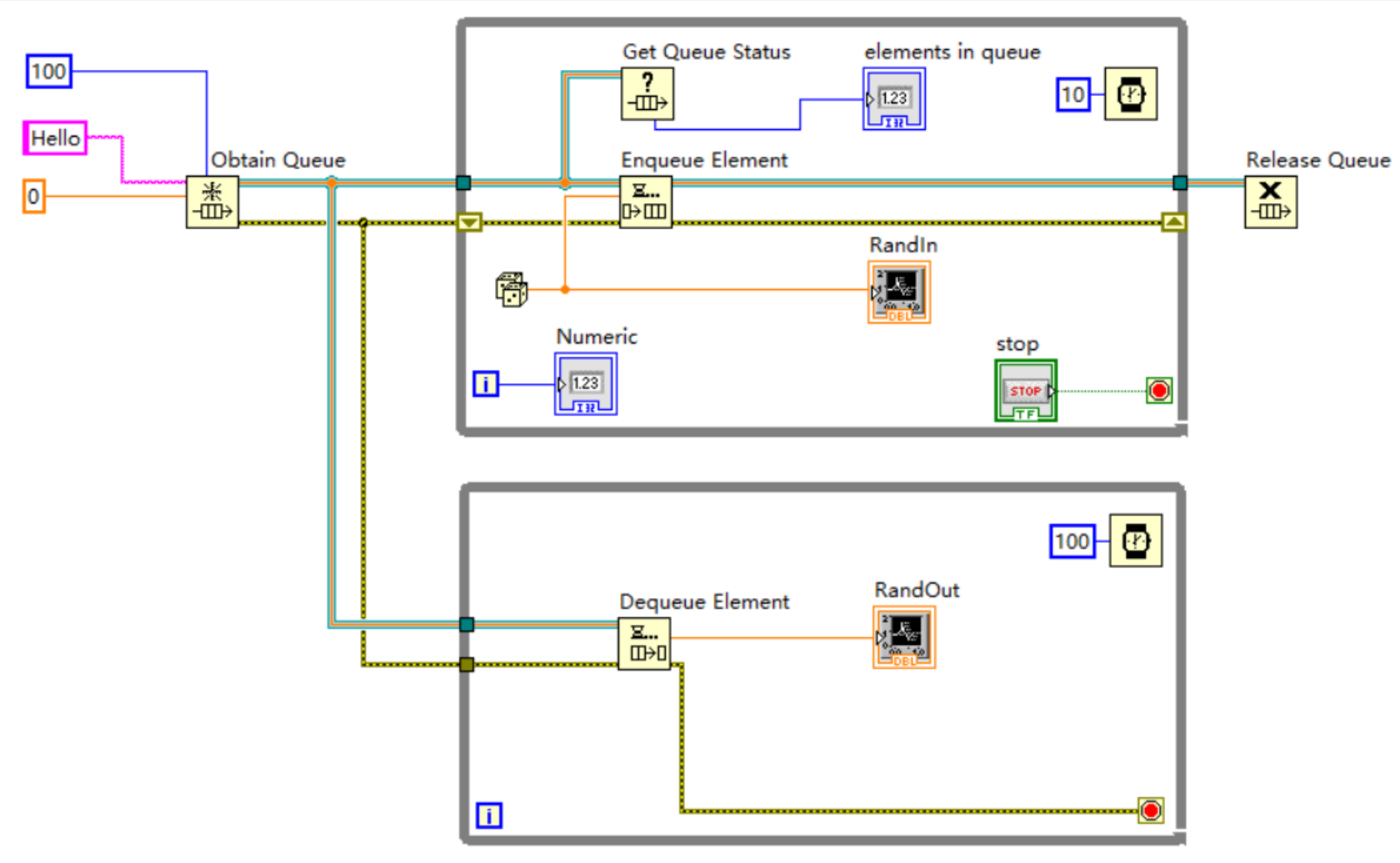

"State 0", Default
200
LED Array
0
F F F F F F F F
State 0
State 8
stop
TF

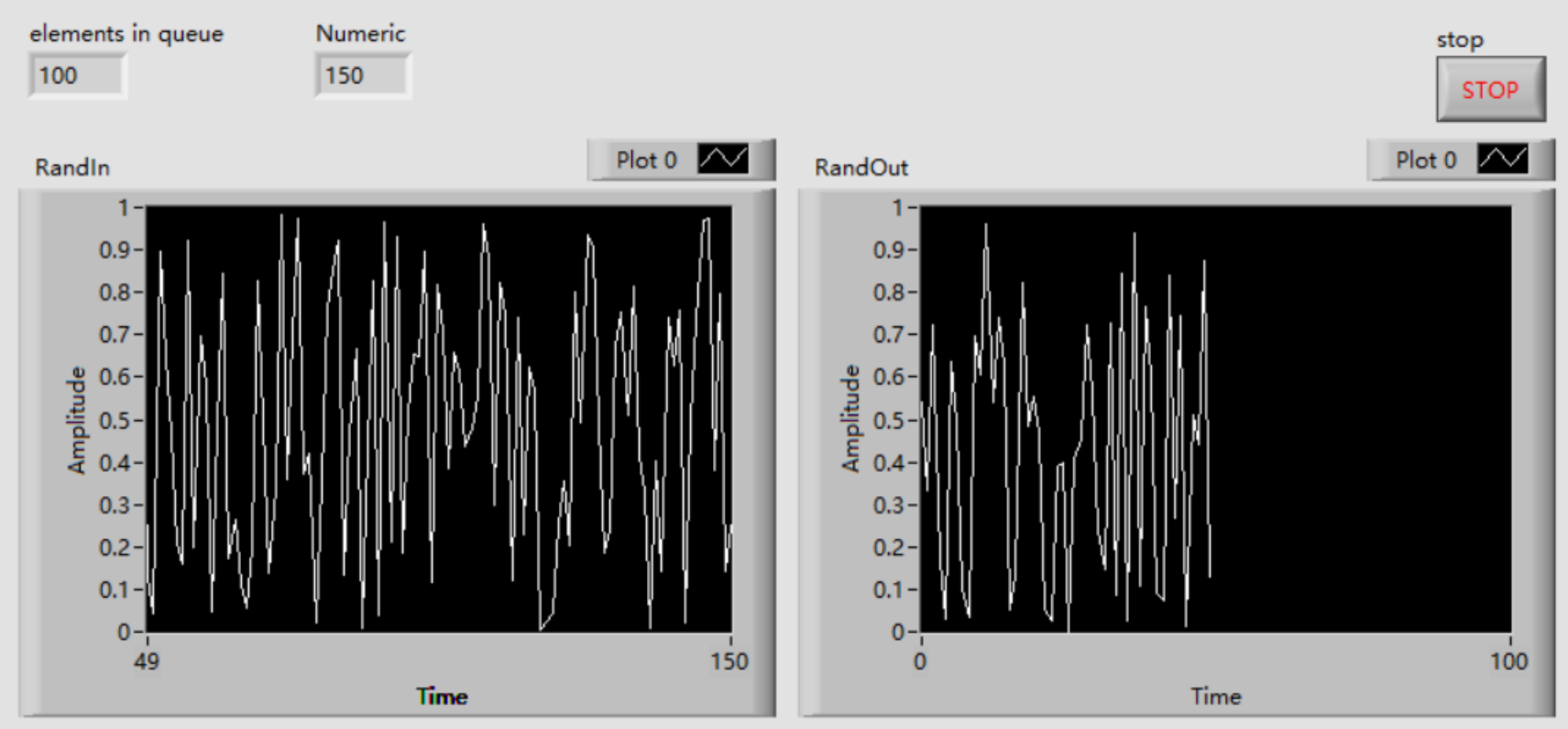
LED Array
0
OK Button
OK
stop
STOP

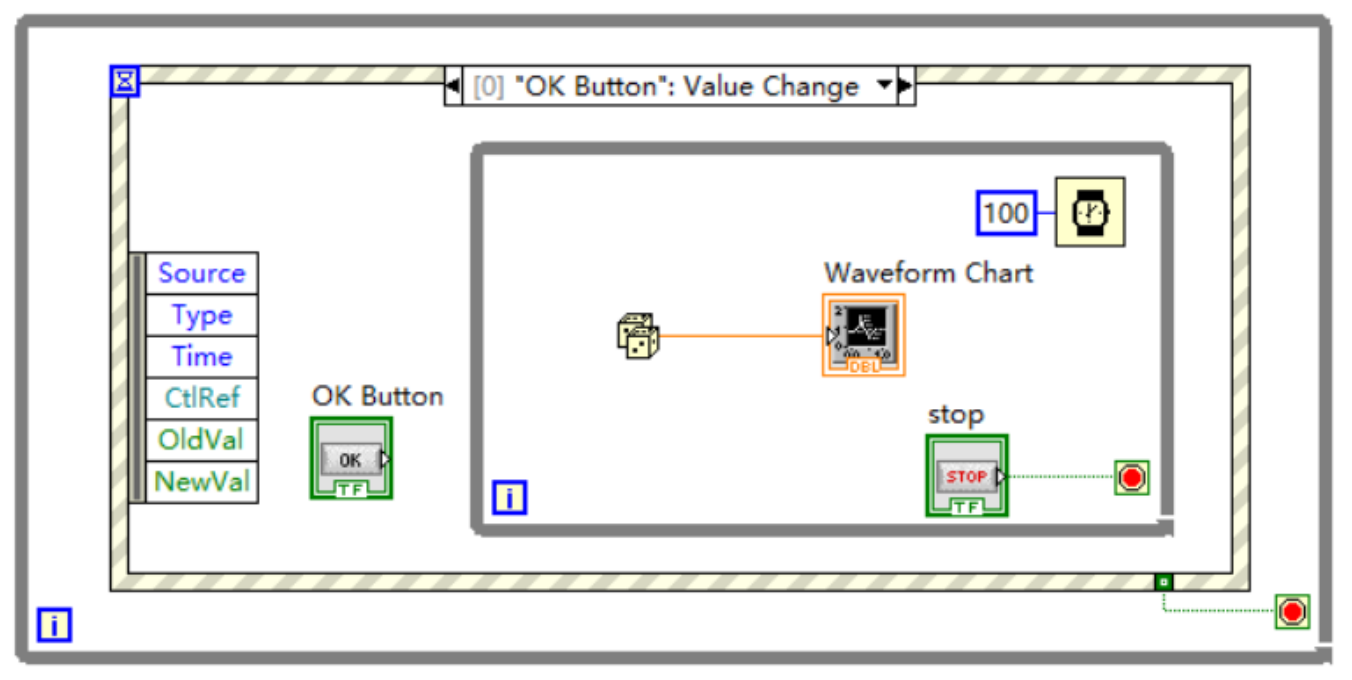

[0] "OK Button": Mouse Down
OK
TF
"State 1"
Source
Type
Time
LED Array
0
T F F F F F F F
123
TF
State 0
State 2
i

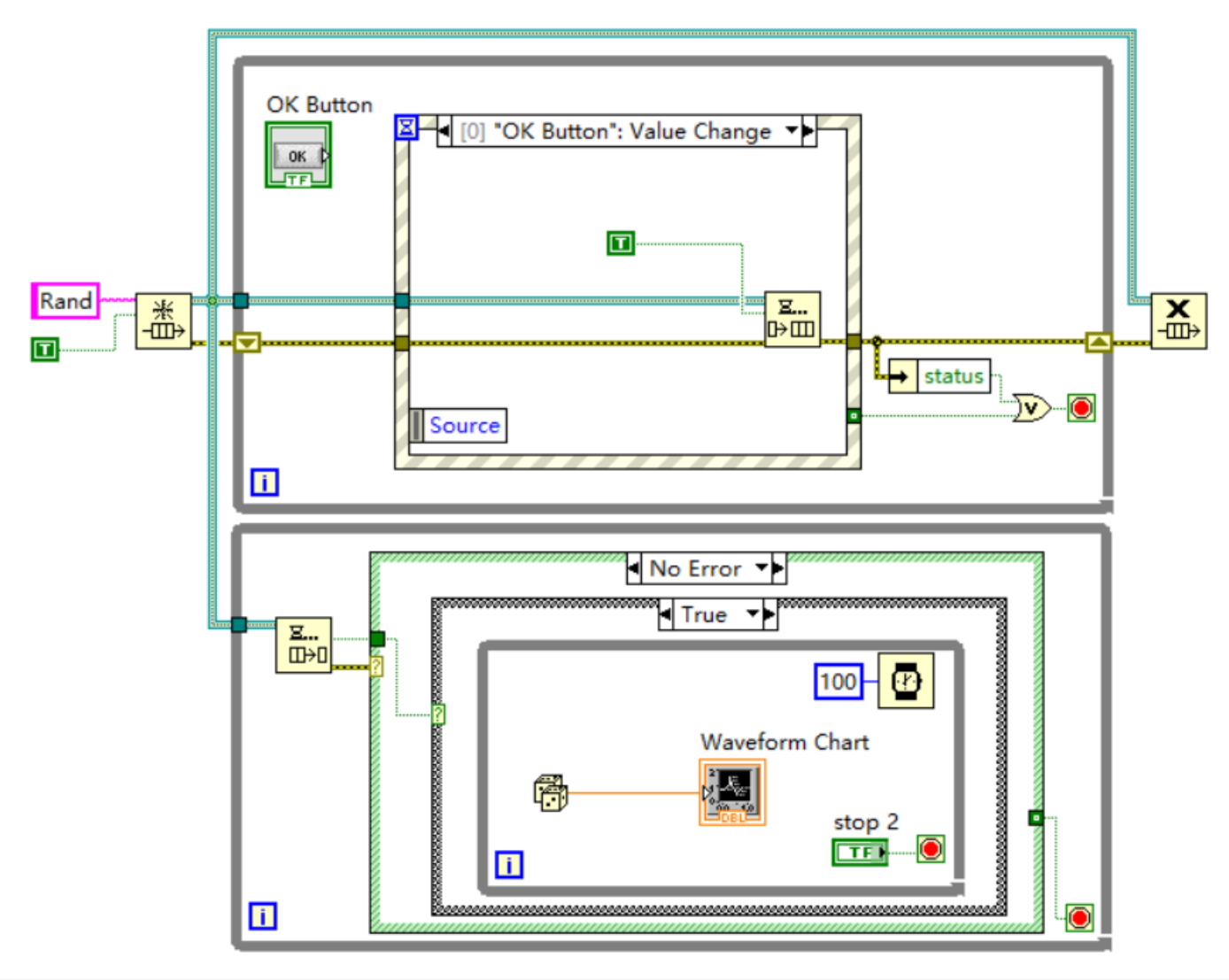


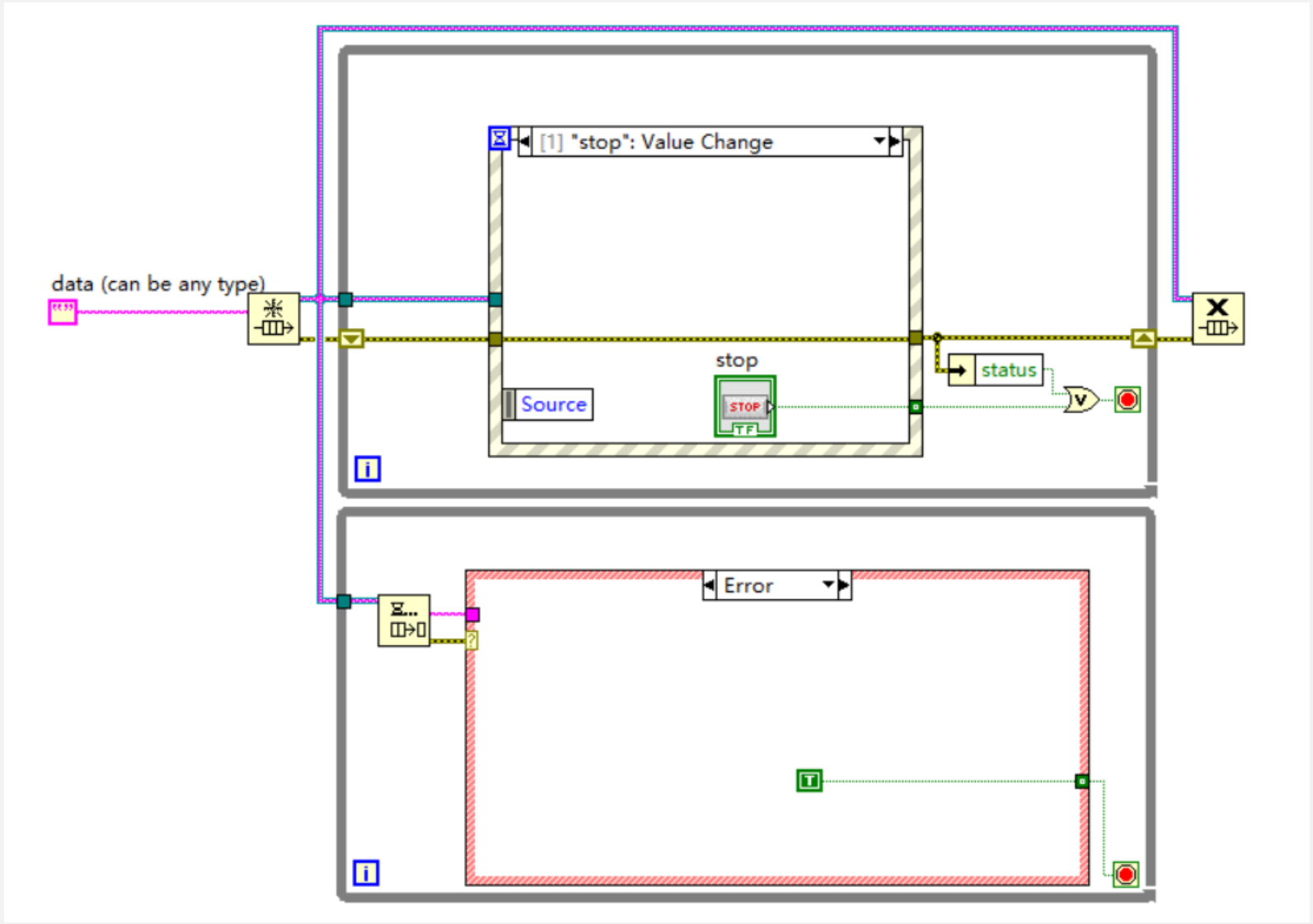

Synchroniza...
RF Communic
Measurement
Instrument I/O
Mathematics
Signal Proces
Data Communication
Connectivity
Express
Synchronization
Queue Operations
Notifier Op...
Queue Ope...
First Call?
Queue Operations
Obtain Que...
Enqueue El...
Preview Qu...
Get Queue ...
Release Qu...
Lossy Enqu...
Enqueue El...
Dequeue El...
Flush Queue

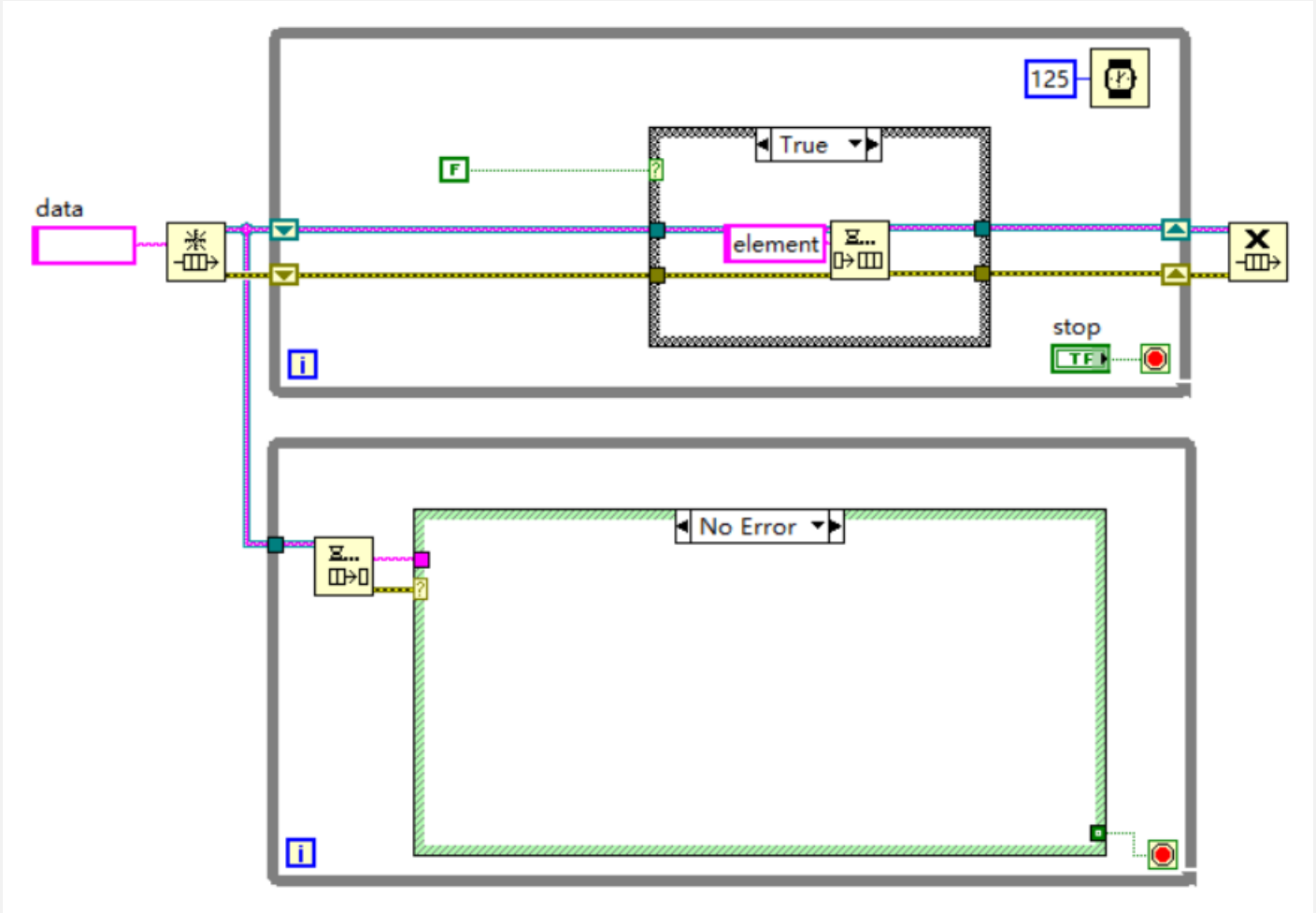

100
Hello
0
Obtain Queue
Get Queue Status
elements in queue
10
Enqueue Element
Release Queue
RandIn
Numeric
stop
100
Dequeue Element
RandOut

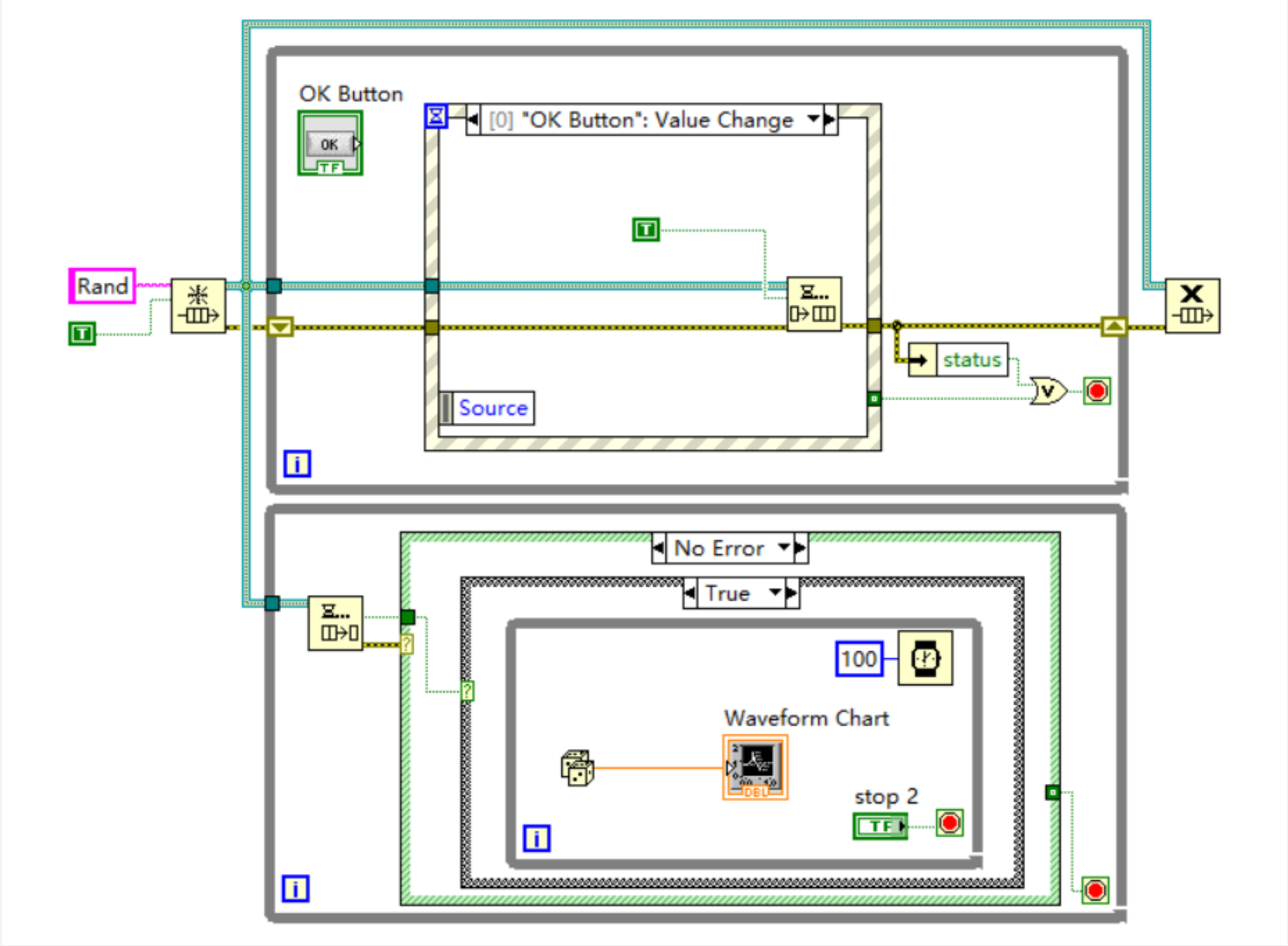

elements in queue
100
Numeric
150
stop
STOP
RandIn
Plot 0
Amplitude
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
49
150
Time
RandOut
Plot 0
Amplitude
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
100
Time

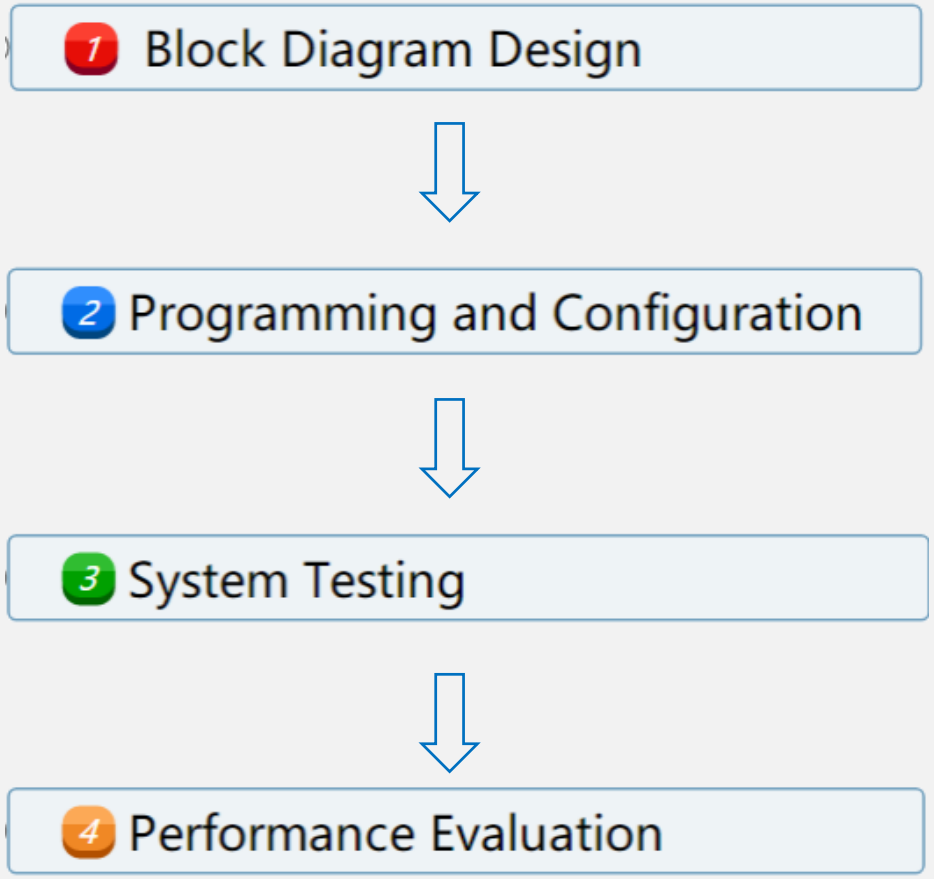

[0] "OK Button": Value Change
Source
Type
Time
CtlRef
OldVal
NewVal
OK Button
OK
TF
100
Waveform Chart
DBL
stop
STOP
TF
i
i


OK Button
OK
TF
[0] "OK Button": Value Change
Rand
T
Source
status
No Error
True
100
Waveform Chart
stop 2
TF
i


data (can be any type)
[1] "stop": Value Change
stop
Source
STOP
TF
status
Error


data
125
True
F
element
stop
TF
No Error


OK Button
OK
TF
[0] "OK Button": Value Change
Rand
T
Source
status
No Error
True
100
Waveform Chart
stop 2
TF


1 Block Diagram Design
2 Programming and Configuration
3 System Testing
4 Performance Evaluation

- Question ?

【通信新说】