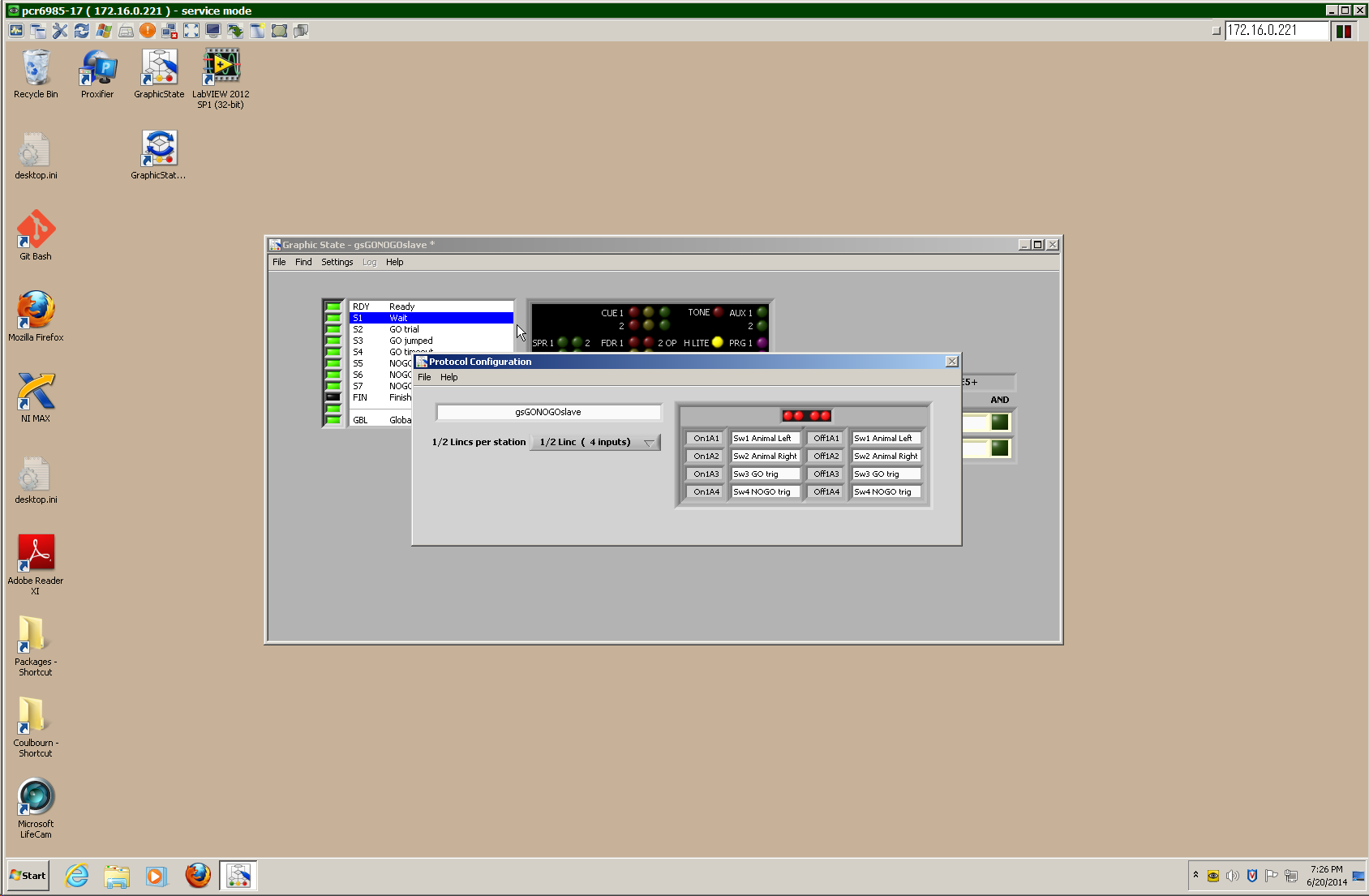
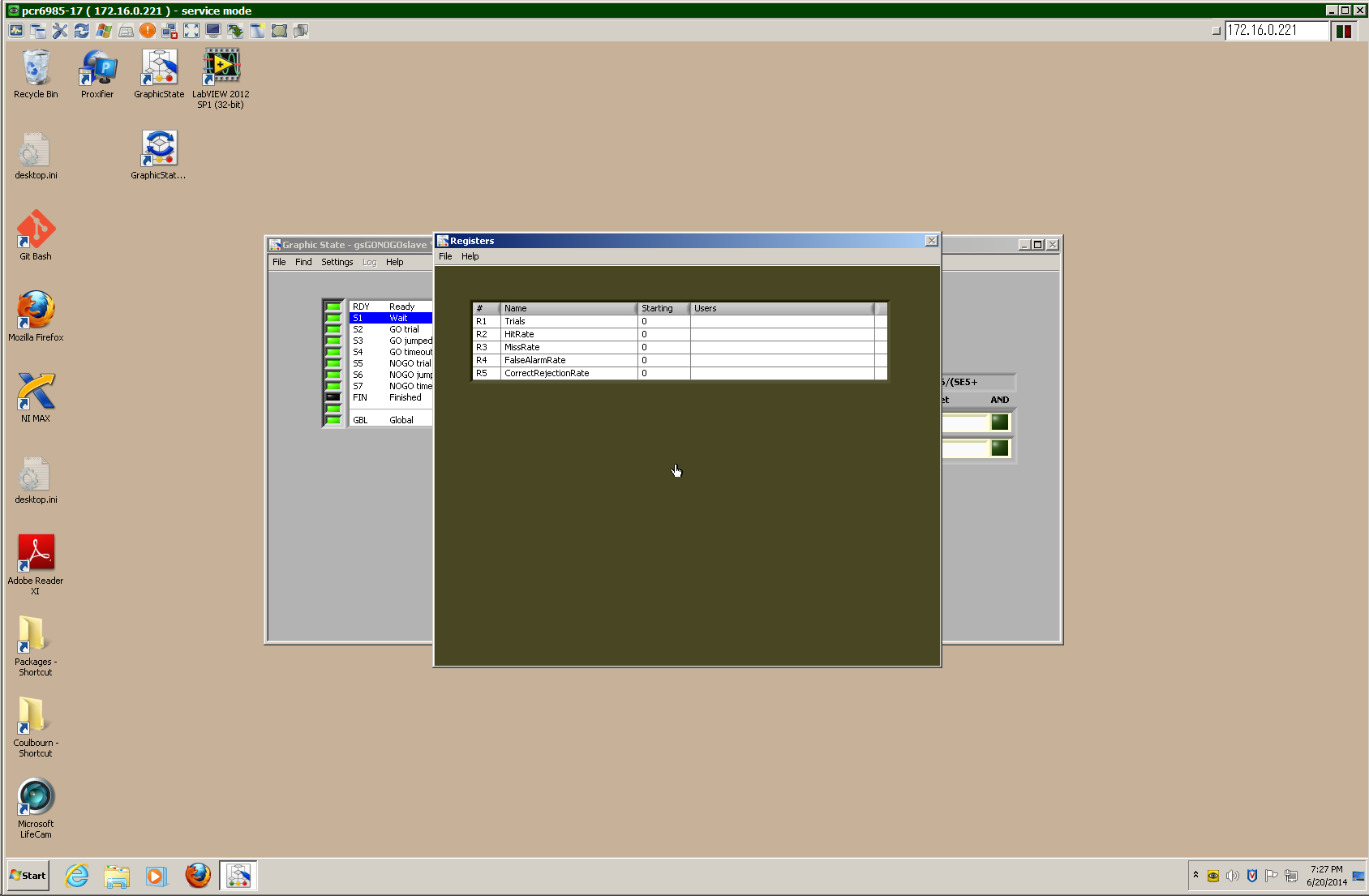
Coulbourn GraphicState4 Program: gsGoNogoTestSlave.gsprt (Kenta)  
Updated KT 2014.08.26

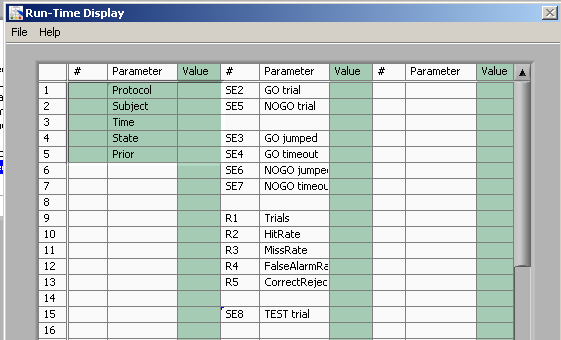
## Protocol Configuration



## Registers



**Run-Time Display**



**Inputs**

Sw3: GO trigger  
Sw4: NOGO trigger  
Sw3 + Sw4: TEST trial trigger

## Outputs

H LITE: Task in progress  
TONE: tone gate (not currently used given 1 FM sweep, can be used in future to gate sweep train for easier training task)  
AUX 1: Shocker

Bit 0 to 2: CUE1-1 to CUE1-3  
Bit 3 to 5: CUE2-1 to CUE2-3  
Bit 6: SPR1  
Bit 7: SPR2

**Flow Chart**

To S1 or S13

To S1 or S13

To S1 or S13

S4  
GO trial

S5  
GO jumped

S6  
GO timeout

S7  
NOGO trial

S8  
NOGO jumped

S9  
NOGO timeout

S10  
TEST trial

S11  
TEST jumped

S12  
TEST timeout

Sw 3/4

RDY  
Ready

S1  
Wait

S13  
Jumped

S2  
Wait Sw1

S3  
Wait Sw2

# Preparation code

## RDY: "Ready"

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comp.** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | sec | >= | 0 | 100 | 1 |  |

## S1: "Wait" [Bit code 1 = 00 000 001]

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

SE4+SE7+SE10>>Trials;   
SE5/(SE4+0.000000001)>>HitRate; SE6/(SE4+0.000000001)>>MissRate;  
SE8/(SE7+0.000000001)>>FalseAlarmRate; SE9/(SE7+0.000000001)>>CorrectRejectionRate;

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comp.** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw3 GO trig | >= | 1 | 100 | 10 | [1] |
| 2 |  | Sw4 NOGO trig | >= | 1 | 100 | 10 | [1] |
| 3 | ☒ | Sw3 GO trig | >= | 1 | 100 | 4 |  |
| 4 |  | Sw4 NOGO trig | >= | 1 | 100 | 7 |  |
| 5 | ☒ | Sw1 Animal Left | >= | 1 | 100 | 2 |  |
| 6 |  | Sw2 Animal Right | >= | 1 | 100 | 3 |  |

## S2: "Wait Sw1" [Bit code 2 = 00 000 010] (Sw1 has been triggered)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | | **R** | | **Parameter** | | **Comp.** | | **Exit Criterion** | | **P(%)** | | **Target** | | **AND** | |
| 1 | |  | | Sw3 GO trig | | >= | | 1 | | 100 | | 10 | | [1] | |
| 2 | |  | | Sw4 NOGO trig | | >= | | 1 | | 100 | | 10 | | [1] | |
| 3 | | ☒ | | Sw3 GO trig | | >= | | 1 | | 100 | | 4 | |  | |
| 4 | |  | | Sw4 NOGO trig | | >= | | 1 | | 100 | | 7 | |  | |
| 5 | |  | | Sw2 Animal Right | | >= | | 1 | | 100 | | 3 | |  | |
| 6 | |  | | Sw1 Animal Left | | >= | | 1 | | 100 | | 2 | | ☐ | |

## S3: "Wait Sw2" [Bit code 3 = 00 000 011] (Sw2 has been triggered)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  | ***Records shuttling during wait period*** |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | | **R** | | **Parameter** | | **Comp.** | | **Exit Criterion** | | **P(%)** | | **Target** | | **AND** | |
| 1 | |  | | Sw3 GO trig | | >= | | 1 | | 100 | | 10 | | [1] | |
| 2 | |  | | Sw4 NOGO trig | | >= | | 1 | | 100 | | 10 | | [1] | |
| 3 | | ☒ | | Sw3 GO trig | | >= | | 1 | | 100 | | 4 | |  | |
| 4 | |  | | Sw4 NOGO trig | | >= | | 1 | | 100 | | 7 | |  | |
| 5 | |  | | Sw1 Animal Left | | >= | | 1 | | 100 | | 2 | |  | |
| 6 | |  | | Sw2 Animal Left | | >= | | 1 | | 100 | | 3 | |  | |

# S4/GO trials

## S4: "GO trial" [Bit code 4 = 00 000 100]

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw4 NOGO trig: | >= | 1 | 100 | 8 |  |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 5 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 5 |  |
| 3 |  | sec | >= | 4 | 100 | 6 |  |

# Animal Jumped

## S5: "GO jumped" (aka Hit) [Bit code 5 = 00 000 101]

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 13 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 13 |  |
| 3 |  | sec | >= | 0 | 100 | 1 |  |

# Animal Didn't Jump

## S6: "GO timeout" (aka Miss) [Bit code 4 = 00 000 100]

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 13 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 13 |  |
| 3 |  | sec | >= | 4 | 100 | 1 |  |

# NOGO trials

## S7: "NOGO trial" [Bit code 5 = 00 000 101]

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw3 GO trig | >= | 1 | 100 | 8 |  |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 8 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 8 |  |
| 3 |  | sec | >= | 4 | 100 | 9 |  |

# Animal Jumped

## S8: "NOGO jumped" (aka False Alarm) [Bit code 6 = 00 000 110]

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 13 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 13 |  |
| 3 |  | sec | >= | 4 | 100 | 1 |  |

# Animal Didn't Jump

## S9: "NOGO timeout" (aka Correct Rejection) [Bit code 7 = 00 000 111]

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 13 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 13 |  |
| 3 |  | sec | >= | 0 | 100 | 1 |  |

**TEST trials**

**S10: "TEST trial" [Bit code 8 = 00 001 000]**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 11 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 11 |  |
| 3 |  | sec | >= | 4 | 100 | 12 |  |

**Animal Jumped**

**S11: "TEST jumped" [Bit code 9 = 00 001 011]**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 13 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 13 |  |
| 3 |  | sec | >= | 0 | 100 | 1 |  |

**Animal Didn't Jump**

**S12: "TEST timeout" [Bit code 12 = 00 001 100]**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 |  | Sw1 Animal Left | >= | 1 | 100 | 13 |  |
| 2 |  | Sw2 Animal Right | >= | 1 | 100 | 13 |  |
| 3 |  | sec | >= | 0 | 100 | 1 |  |

**Jump Marker**

**S13: "Jumped during marker block" [Bit code 13 = 00 001 101]**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | CUE 1 |  |  | TONE |  | AUX 1 |  |  |  | |
|  |  |  | 2 |  |  |  |  | 2 |  |  |  | |
| SPR 1 |  | 2 | FDR 1 |  | 2 OP | H LITE |  | PRG 1 |  |  |  |
| 3 |  | 4 | 1 |  | 2 ML |  |  | 2 |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Goto#** | **R** | **Parameter** | **Comparison** | **Exit Criterion** | **P(%)** | **Target** | **AND** |
| 1 | ☒ | Sw1 Animal Left | >= | 1 | 100 | 13 | ☐ |
| 2 | ☒ | Sw2 Animal Right | >= | 1 | 100 | 13 | ☐ |
| 3 | ☒ | sec | >= | 0 | 100 | 1 | ☐ |