E-prime Code for Automatic RF Pulse Triggering
By Justin Spears

The following code can be used to automatically trigger E-prime based paradigms using the 3T scanner’s RF pulse. Utilize the following steps, but keep in mind that each paradigm is unique and your design may need slight modification to accommodate this function.

1. In your paradigm make three inline sections, one for constant declarations and initiations (here it is called “Initiate”), one for the RF pulse start (here it is called “InitRFp”) and one for sequence initiation (called “Start”).

2. Copy the appropriate code from below to each section.

3. To initiate your sequence with an RF pulse you can use the command listed at the bottom of the document (called “start”). You may wish to have this after your welcome screen.

If you have any problem with this code you can direct questions to Justin Spears in the MR Research Center @ spearsjr@upmc.edu.
' Parallel port location
Const PARALLEL_PORT = 888 '378

' Constants for the BSOFTcard
Const BSFTIOCARD_BASE As Integer = &H200
Const BSFTIOCARD_PORT_A As Integer = BSFTIOCARD_BASE + 28
Const BSFTIOCARD_PORT_B As Integer = BSFTIOCARD_BASE + 29
Const BSFTIOCARD_PORT_C As Integer = BSFTIOCARD_BASE + 30
Const BSFTIOCARD_PORT_CONTROL As Integer = BSFTIOCARD_BASE + 31
Const BSFTIOCARD_CONFIG_DATA As Integer = &H92

' Constants for using scanner RF_Pulse
Const RFP_SCANNER_ADDRESS As Integer = BSFTIOCARD_PORT_B
Const RFP_SCANNER_PULSEBITMASK As Integer = &H80 '000 0000
Const RFP_SCANNER_MNPULSETRAINSPACE As Integer = 4000 'msec
Const RFP_SCANNER_INVERTPULSEDATA = False 'True=0 to 1, False=1 to 0

' Declare BRU variables
Dim jrs_RFP As RFPulse

' Set MRRC output as attribute
If Not c.AttribExists("MRRCCard") Then
    c.SetAttrib "MRRCCard", 1 'MRRC Nidaq
End If

========================================================================
Declare RF-Pulse variable
Set jrs_RFP = New RFPulse
    Set jrs_RFP = New RFPulse

Set MRRC output to activate
    If c.GetAttrib( "MRRCCard" ) = 1 Or c.GetAttrib( "MRRCCard" ) = 2 Then
        If c.GetAttrib( "MRRCCard" ) = 1 Then
            jrs_RFP.Address = 1  ' device ID of MRRC Nidaq
        Else ' MRRCCard = 2
            jrs_RFP.Address = RFP_SCANNER_ADDRESS
        End If
    End If
    jrs_RFP.PulseBitMask = RFP_SCANNER_PULSEBITMASK
    jrs_RFP.MinPulseTrainSpace = RFP_SCANNER_MINPULSETRAINSPACE
    jrs_RFP.InvertPulseData = RFP_SCANNER_INVERTPULSEDATA
    jrs_RFP.Enable
End If
jrs_RFP.Reset
Do
Loop Until jrs_RFP.PulseTrainActive