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Module

ServoBeam.c

Description

This implements a state machine for the servo that controls the shield associated with the beam break sensor.

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InitServoBeam

Enable pin B0 as a digital input with internal pullup resistor

Set CurrentState to InitPState

Post ES_INIT event to ServoBeam

End InitServoBeam

PostServoBeam

Post event to this state machine’s queue

End PostServoBeam

RunServoBeam

Use GetServoPosition() to save beam servo position

CurrentState is InitPState

If Event is ES_INIT

Set servo to its lower limit

End InitPState block

CurrentState is AtCCWLimit

If Event is BeamBroken

Initialize servo beam delay timer

Set NextState to CWRotating

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        End AtCCWLimit block
        CurrentState is AtCWLimit
            If Event is BeamActivated
                Initialize servo beam delay timer
                Set NextState to CCWRotating
        End AtCWLimit block
        CurrentState is CWRotating
            If Event is ES_TIMEOUT for beam delay timer
                Set servo to current position plus the increment value
                Initialize servo beam delay timer
            Else if Event is BeamActivated
                Set NextState to CCWRotating
            Else if Event is CWLimitReached
                Set NextState to AtCWLimit
        End CWRotating block
        CurrentState is CCWRotating
            If Event is ES_TIMEOUT for beam delay timer
                Set servo to current position minus the increment value
                Initialize servo beam delay timer
            Else if Event is BeamBroken
                Set NextState to CWRotating
            Else if Event is CCWLimitReached
                Set NextState to AtCCWLimit
        End CCWRotating block
        Set CurrentState to NextState
End RunServoBeam
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CheckBeamBreak

Static module level variable: static uint8_t LastBeamStatus

Read CurrentBeamStatus from pin B0

If CurrentBeamStatus does not equal LastBeamStatus

If CurrentBeamStatus is 0

Post BeamBroken event to ServoBeam

Else if CurrentBeamStatus is 1

Post BeamActivated event to ServoBeam

Set LastBeamStatus to CurrentBeamStatus

End CheckBeamBreak