// Global Variables

state = OFF

target\_speed = 0

current\_speed = 0

pulse\_count = 0

//Interrupt Handlers

// Called when SET button is pressed

interrupt SET\_pressed {

if (state == STANDBY and current\_speed > 0) {

state = ACTIVE

target\_speed = current\_speed

display("-> ACTIVE (Set engaged)")

}}

// Called when (+) button is pressed

interrupt PLUS\_pressed {

if (state == ACTIVE) {

target\_speed = target\_speed + 5

}}

// Called when (-) button is pressed

interrupt MINUS\_pressed {

if (state == ACTIVE and target\_speed > 5) {

target\_speed = target\_speed - 5

}}

// Called when Brake is pressed or released

interrupt BRAKE\_changed {

if (brake == PRESSED) {

state = OVERRIDE

display("-> OVERRIDE (Brake pressed)")

} else {

if (current\_speed > 0) {

state = ACTIVE

display("Brake released -> ACTIVE")

} else

{

state = STANDBY

display("Brake released -> STANDBY")

} } }

// Called on each speed sensor pulse

interrupt SPEED\_pulse {

pulse\_count = pulse\_count + 1

}

// Main Program

function main() {

initialize hardware

state = STANDBY

loop forever {

// Update current speed every 100ms

if (time\_elapsed(100ms)) {

current\_speed = convert\_pulses\_to\_kmh(pulse\_count)

pulse\_count = 0 }

// Control throttle in ACTIVE state

if (state == ACTIVE) {

error = target\_speed - current\_speed

throttle = proportional\_control(error)

} else {

throttle = 0 }

// Update display every 250ms

if (time\_elapsed(250ms)) {

display("State=", state, " Target=", target\_speed, " Current=", current\_speed)

}

wait(1ms) } }