

Connecting the Blocks

Main block connections:

I2C Communication:

- startAll.start → mpu6050.start → i2c.start
- i2c.sdaIn ↔ mpu_sda (bidirectional pin)
- i2c.sdaOutReg → inverterC.A → AND2b.A
- i2c.isSending → AND2b.B → AND2b.Y → mpu_sda
- i2c.scl → mpu_scl (I2C clock output)

MPU6050 Sensor:

- mpu6050.accelX/Y/Z, gyrosX/Y/Z: raw data outputs from the sensor
- mpu6050 ↔ i2c (via: instruction, toSend, i2cEnable, received, complete, nack)

Angle Calculation:

- arctanCORDIC 1: x = accelZ, y = accelY
- arctanCORDIC 2: x = accelZ, y = accelX
- Both have active and sig outputs, plus value (calculated angle)

Filtering:

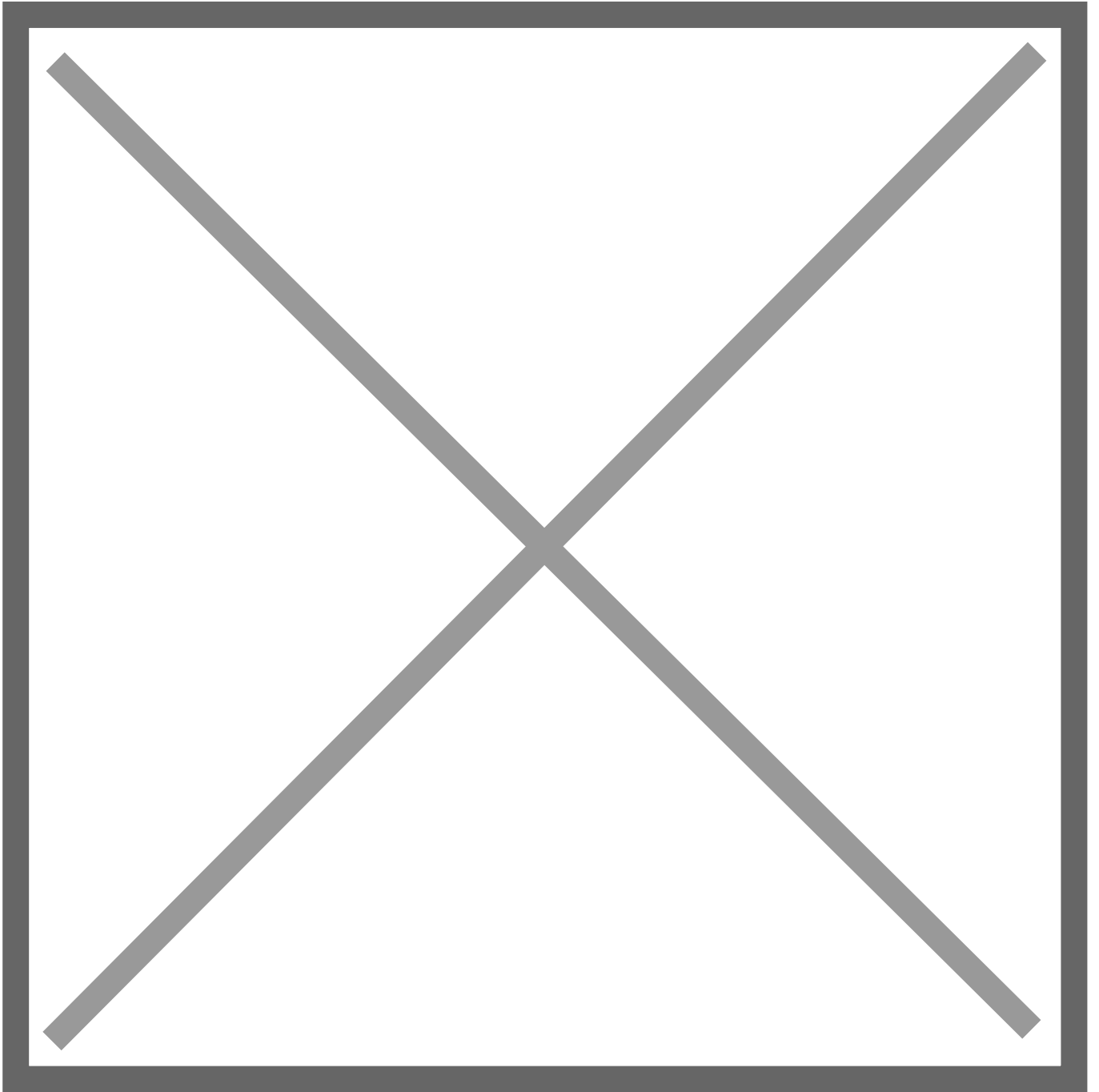
- Each value output from the arctanCORDIC modules goes to a lowPassFilter for signal smoothing.

Control:

- The filtered signals are sent to closeLoop, with referenceMF = 0 (leveling reference).
- The calculated error generates active (2-bit) and sig (direction) control outputs.

Servo Actuation:

- The control outputs from closeLoop feed into two servo blocks that adjust the platform's tilt.



Revision #1

Created 27 March 2025 19:29:12 by Caroline

Updated 27 March 2025 19:30:30 by Caroline