POE to do today:

Balance pan tilt by adding weight to the other arm.

Modify another potentiometer to have full 360 degree rotation

Test the first pot to make sure nothing is broken due to the reassembly process

Move the gun mount to the side

Fabricate a mount for the IR scanner, placing it at the center of rotation (CAD and 3D print??)

Design and work order or laser cut a sign for scanning

Find/ buy material for sign??

Create small spacer for second axis of rotation so pot doesn’t interfere with gear- can just be cut out of wood.

Attach second potentiometer and spacer (epoxy) for position feedback on second axis

Design, CAD, and 3D print arms for holding the stationary side of the potentiometers. Epoxy them on.

Electrical wiring and routing- minimize entanglement points.

Mount Arduino on arm to reduce entanglement points??

Battery powered- mount battery on arm to reduce entanglement points/ reduce wall dependency??

Use these last two as the counter weights to balance pan tilt system??

SOFTWARE:

Before getting to ‘ground zero’: write functions (using timer based interrupts to check and correct position every ms??) that allow you to specify an angle and trust that the motor will go to and maintain that angle. Ie, how servos normally work, only implementing a basic PI loop (could even just be steep P loop) in software using timer interrupts to make sure position is maintained after it is achieved without eating all processing power.