Motor RPM Test

Description:

This test is performed to determine if the rotations per minute of the motor is accurate. At programmed speeds the prototype will be assessed to how accurate the physical speed is compared to the expected speed. At least 5 trials will be conducted for each set speed. The load will be constant throughout the trials.

Materials:

1. Ultrasonic Motor
2. Microcontroller & Wires
3. Post-It flag
4. Camera
5. Kinovea software

Procedure:

1. Connect the motor to the microcontroller and plug into power.
2. Connect the microcontroller to a laptop with the required files.
3. Ensure that the latest version of the active program is uploaded to the motor.
   a. The latest main.cpp can be downloaded from Lab Archives.
4. Place a thin post-it flag on the motor shaft to mark an initial position.
5. Set-up camera in full view of the platform and begin recording a video.
6. Run the function "motorRPMTest()" by pressing 5.
   a. This program will rotate the motor at 20 RPM until the encoder counts 1 revolution.
7. Once complete, stop recording the video.
8. Compare the time to complete the rotation to the expected time.
9. Repeat steps 4-8 until 5 or more trials are completed.
10. Repeat the procedure for a speed of 40 RPM and 60 RPM.