

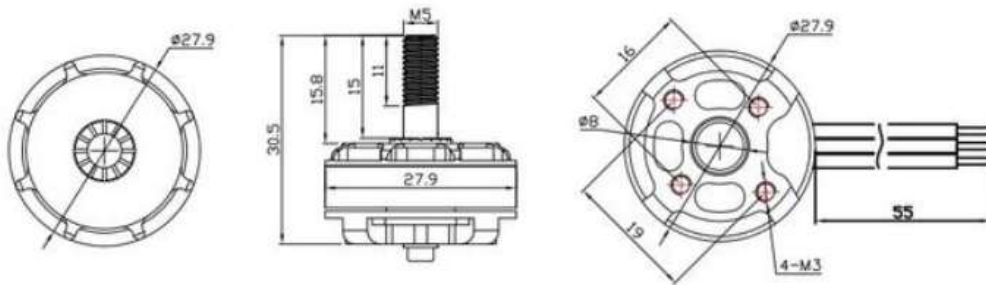
Bonus Task: Data Collection

The drone noise was recorded using a single microphone embedded on the UAV. An ATMEGA328P based arduino UNO development board was used for the purpose. UNO has a 10 bit ADC with fastest conversion rate of 13us which equals a maximum sampling rate of 76 KHz. The recording was done at large barren land to avoid reverberation. All effort were done to keep the drone stable and angular speed fixed. A video of the recording process is included in the same folder. The photos of used recording setup is also included. The obtained ego noise was processed using Audacity to suppress the internal noise of recording setup. So both the original (task_audio.wav) and noise reduced (task_audio_edited.wav) versions are enclosed.

UAV Specifications

1. BLDC motor

Brand name: Emax
Item model: RS2205-2300KV-S
KV: 2300 / 2600
Length: 30.5mm
Diameter: 27.9mm
Max Thrust: 1180g
Shaft: M5
Weight: 28.6g



2. Frame

Wheelbase: 218mm
Material: Carbon fiber
Bottom Plate thickness: 4mm
Side Plate thickness: 2mm
Other Plate thickness: 1.5mm
Weight: 99 g

3. Propeller

Brand name: Dalprop
Item name: cyclone T3056C propeller
Material: PC+ABS
Color: black, crystal blue, crystal purple, crystal green (optional)
Weight: 1.7g
Inner diameter (Prop mount): ϕ 5mm
Length: ϕ 76.2mm