**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 supress 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

![BLDC motor image]

2. **Frame**

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

![Frame image]

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 diamete (Prop mount): φ5mm  
   Length: φ76.2mm

![Propeller image]