**1. Components and Costs:**

**Motors and Control:**

1. **D89MW, 32-Bit, Wide Voltage, Metal Gear Servo** 
   * **Cost:** $94.90AUD
   * https://www.desertaircraft.com.au/shop/hitec-d89mw-ultra-torque-micro-digital-servo-metal-gear-25t.html
2. **Metal Geared MG90S 180° Micro Servo (2x) (for hinge and yaw control)**
   * **Cost Per Unit:** $13.95AUD
   * **Total Cost:** $27.9AUD
   * https://www.altronics.com.au/p/z6444-mg90s-metal-geared-micro-servo/
3. **VNH5019 motor driver carrier (2x) (9g/unit) *(MOSFET driver for better power consumption)***
   * **Cost Per Unit:** $50.35AUD
   * **Total Cost:** $100.7AUD
   * https://core-electronics.com.au/vnh5019-motor-driver-carrier.html
4. **ARDUINO MKR 1000 (for control)**
   * **Cost:** **:** $74.50AUD
   * https://core-electronics.com.au/arduino-mkr1000-wifi.html
5. **Potentiometer B10K (for manual control tuning)**
   * **Cost:** $5AUD

**Sensors:**

1. **MPU-6050 Module 3 Axis Gyroscope + Accelerometer**
   * **Cost:** $3.75AUD
   * https://core-electronics.com.au/mpu-6050-module-3-axis-gyroscope-acce-lerometer.html
2. **Adafruit 9-DOF Absolute Orientation IMU Fusion Breakout - BNO055 (converting raw sensor data into actual 3d orientation)**
   * **Cost:** $34.95AUD
   * <https://www.amazon.com/Adafruit-Absolute-Orientation-Fusion-Breakout/dp/B017PEIGIG/ref=as_li_ss_tl?keywords=adafruit+bno055&qid=1563287478&s=gateway&sr=8-2&linkCode=sl1&tag=sonofthesouth-20&linkId=169287cd0839fcf085e0336a40e70952&language=en_US>
3. **Adafruit BMP280 I2C or SPI Barometric Pressure & Altitude Sensor - STEMMA QT**
   * Cost: $19.85AUD
   * https://core-electronics.com.au/adafruit-bmp280-i2c-or-spi-barometric-pressure-altitude-sensor.html

**Miscellaneous Electronics:**

1. **WiFi Module (for remote control)**
   * **Arduino Nano (WiFi)**
   * **Cost:** $30AUD
2. **Battery and Power Distribution:**
   * **CASTLE 12S LIPO 50V MAX/ PHOENIX ICEHV 80 DATA LOGGING OPTO ISOLATED THROTTLE LEAD**
   * **Cost:** $80AUD

**Mechanical Components:**

1. **Frame and Wing Material (Custom-made)**
   * **Estimated Cost:** $100AUD
2. **Connectors, Wiring, and Soldering Material**
   * **Estimated Cost:** $30AUD
3. **Assembly and Testing Tools**
   * **Estimated Cost:** $40AUD

**2. Budget Estimate:**

|  |  |  |  |
| --- | --- | --- | --- |
| Component | Quantity | Cost Per Unit (AUD) | Total Cost (AUD) |
| D89MW, 32-Bit, Wide Voltage, Metal Gear Servo | 1 | $94.90 | $94.90 |
| Metal Geared MG90S 180\* Micro Servo | 2 | $13.95 | $27.90 |
| VNH5019 Motor Driver Carrier | 2 | $50.35 | $100.70 |
| Arduino MKR 1000 | 1 | $74.50 | $74.50 |
| Potentiometer B10K | 1 | $5.00 | $5.00 |
| MPU-6050 Module 3 Axis Gyroscope + Accelerometer | 1 | $3.75 | $3.75 |
| Adafruit 9-DOF Absolute Orientation IMU fusion Breakout – BNO055 | 1 | $34.95 | $34.95 |
| Adafruit BMP280 I2C or SPI Barometric Pressure & altitude Sensor | 1 | $19.85 | $19.85 |
| Arduino Nano (Wifi Module) | 1 | $30.00 | $30.00 |
| Battery (Li-po) | 1 | $80.00 | $80.00 |
| Frame and wing material (custom-made) | X | $100.00 | $100.00 |
| Connectors, Wiring and soldering | X | $30.00 | $30.00 |
| Assembly and testing tools | x | $40.00 | $40.00 |
| Misc (backup tools) | x | $300.00 | $300.00 |
| Total |  |  | $941.55 |

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**3. In-person Contributions:**

**3D Printer Workshop Staff Time:**

* + **Estimated Hours:** 5 hours
  + **Rate:** $80/hour
  + **Total Cost:** $400
* **Total In-person Contributions:** $400

**4. Final Budget Estimate:**

* **Components Total Cost:** $941.55
* **In-Kind Contributions:** $400
* **Total Budget Estimate:** $1341.55

**5. Resource Acquisition Plan:**

* **Motors, Sensors, and Electronics:** Sourced from suppliers like coreelectronics, sparkfun, or Adafruit.
* **Frame and Mechanical Components:** Custom-made using faculty workshop or external fabrication services.

This budget and resource allocation should suffice for the design, construction, and testing of a FWMAV. Please ensure all items are available and check for compatibility during the assembly process.Top of Form

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