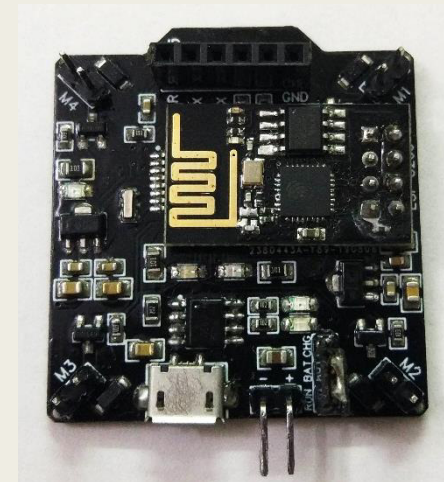


DH DRONE DOCUMENTATION

v1.5



INTRODUCTION

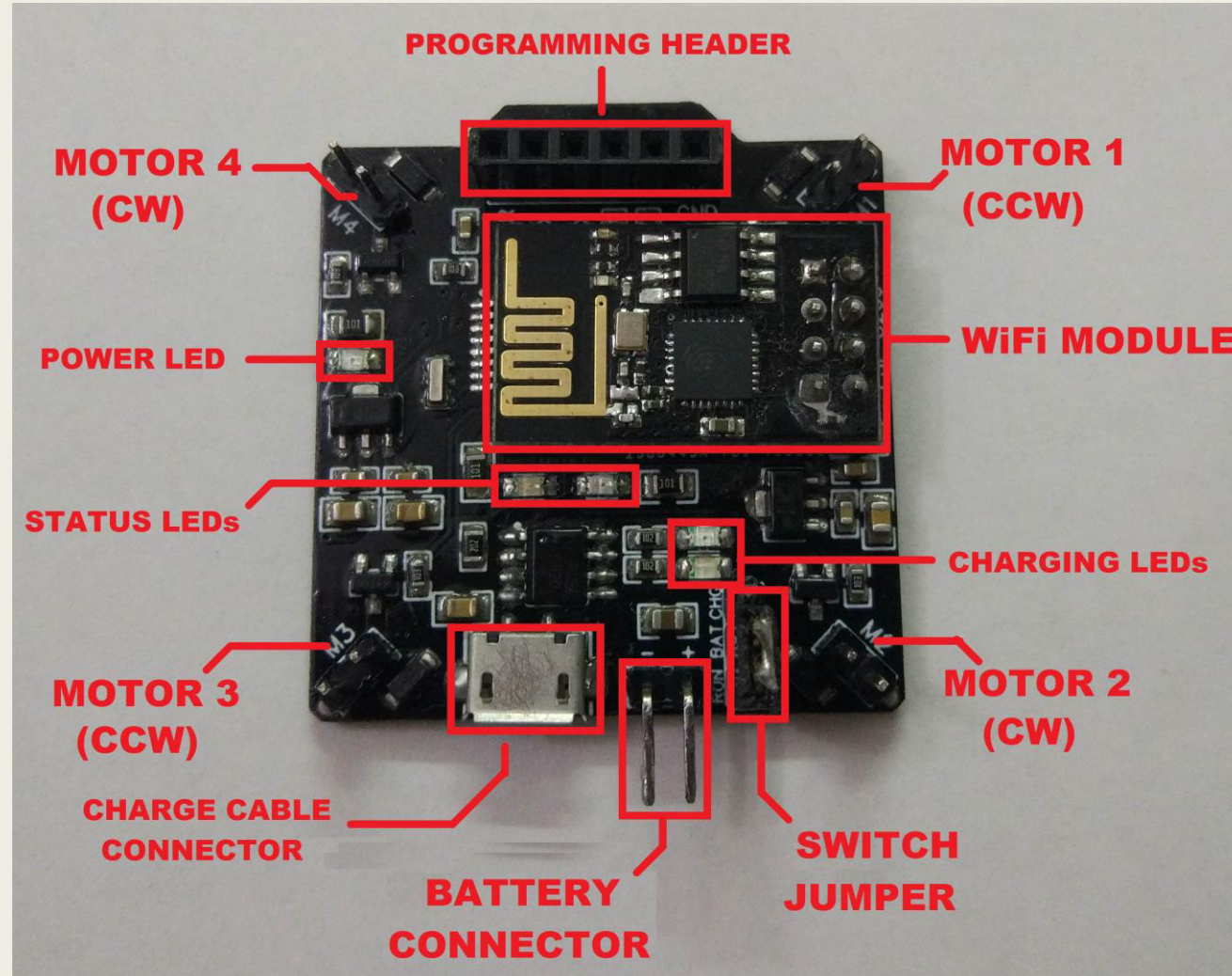
- The “DH Drone” is India’s first 3D printed, **programmable** drone which is designed to teach school and college students about the concepts of drone technology.
- The drone provides an excellent platform to students to learn and grow.
- The drone comes with Testing Codes which can be read and understood by students so that they know how things work under the hood and are able to develop their own flight controller algorithms in future.

More features of the drone are described in the upcoming pages.

TERMS OF USE

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FLIGHT CONTROLLER OVERVIEW



ITEMS LIST

- 1 * Flight Controller Board
- 1 * Frame
- 4 * Motors
- 2 * Propellers Sets
- 1 * Battery
- 1 * FTDI Programmer
- 1 * Programmer Cable
- Controller APP
- Testing Code
- Flying Code Hex File



FEATURES

1. Wi-Fi Controlled via Mobile

The Drone is controlled using Wi-Fi with an Android APP which is provided with the drone.

The APP is very easy and user friendly to use.

*Hence, **no external remote is needed**. The APP can be installed in any Android mobile phone which will turn the mobile into a remote.*

This gives the advantage of easy carrying of drone and since nowadays everyone has an Android phone, the customer doesn't need to buy any other dedicated remote.

FEATURES

2. USB Chargeable

The battery of the drone can be charged using a simple micro USB cable with a mobile charger or a laptop.

*Hence, **no external charger is needed** to charge the batteries. This reduces the cost and increases the easiness to use the product.*

Since, the remote and charger are eliminated, therefore its very easy and convenient to carry the drone from one place to another without forgetting any part.

FEATURES

3. Fully Programmable

The drone can be programmed by students and comes with a testing code and a flying hex file.

*The testing code is fully readable and understandable by students to see how everything works under the hood. This code has a set of **40 - 45 commands** which can be used to see live sensor data, Wi-Fi data, battery voltage, calibration values, etc. The testing code is made in such a way that the students can use and learn it.*

No programming background is required to use the testing code and the flying hex file. Therefore, it is very easy and convenient to use the codes and program the drone.

FEATURES

4. Palm Sized and Light Weight

The size of the drone is no more than the size of a human palm. Hence it can be easily stored and carried to different places.

Due to the small size, the weight of a fully assembled drone is below 75 grams. Therefore, in most countries no special permissions are required for such ultra light weight drones.

*The complete circuitry of the drone comes in less than 4cm*4cm sized PCB.*

FEATURES

5. On-board charging and status LEDs

The PCB of the drone has a set of 5 LEDs out of which 2 are used for charging indication, 2 for program status and 1 for power indication.

Therefore, the drone is very user friendly and convenient to use.

FEATURES

6. Flight Time

The size of the drone is small and compact, but the battery is huge. The drone is equipped with high density Lithium Polymer (Li-Po) battery, giving a continuous flight time of around 300 seconds on a single charge.

FEATURES

7. Sensor Fusion

The drone comes in 2 models i.e. a basic model and a pro model.

The basic model has 6 DOF Flight Controller algorithm (3 axis gyroscope and 3 axis accelerometer) and has “auto level” flight mode only.

The pro model has 7 DOF Flight Controller algorithm (3 axis gyroscope, 3 axis accelerometer and a barometer) and has “auto level + altitude hold” flight modes.

FEATURES

8. Durable, Harmless and Safe

The drone has a very durable frame which won't break easily on crashes.

Due to the small size and light weight, the drone is harmless to students and won't cause any injuries in most situations as compared to larger drones with big sized propellers.

FEATURES

9. Auto-shutdown features

Keeping safety in mind, the drone is programmed with 3 auto-shutdown features as described below:

- **Auto-shutdown on crash detection.** If the drone senses a crash scenario, then all the motors of the drone will turn off, preventing any possible damage.*
- **Auto-shutdown on Wi-Fi loss.** If the Wi-Fi connection gets broken during a flight, the drone will automatically turn off and fall to ground, thus preventing any possible flyaway.*
- **Auto-shutdown on low battery.** If the drone senses low battery level, it will turn off automatically.*

FEATURES

10. Additional notes

All the materials of the drone are quality products and does not compromise with quality in any case.

The drone is made using self-made flight controller hardware and software.

Providing quality service to the customers is our primary target as we believe in long customer relations.