**COMPONENT SPECIFICATIONS (Fish Feeder)**

**Note:** The specifications shown in here are given by the manufacturers.

1. **Arduino Uno**

* **Microcontroller: ATmega328P**
* **Operating Voltage: 5V**
* **Input Voltage (recommended): 7‐12V**
* **Input Voltage (limit): 6‐20V**
* **Digital I/O Pins: 14 (of which 6 provide PWM output)**
* **PWM Digital I/O Pins: 6**
* **Analog Input Pins: 6**
* **DC Current per I/O Pin: 20 mA**
* **DC Current for 3.3V Pin: 50 mA**
* **Flash Memory: 32 KB (ATmega328P) of which 0.5 KB used by bootloader**
* **SRAM: 2 KB (ATmega328P)**
* **EEPROM: 1 KB (ATmega328P)Clock Speed: 16 MHz**
* **LED\_BUILTIN: 13**
* **Length: 68.6 mm**
* **Width: 53.4 mm**
* **Weight: 25 g**

1. **Ultrasonic Distance Sensor (SR04)**

* Power Supply :+5V DC
* Quiescent Current : <2mA
* Working Currnt: 15mA
* Effectual Angle: <15°
* Ranging Distance : 2cm – 400 cm/1″ – 13ft
* Resolution : 0.3 cm
* Measuring Angle: 30 degree
* Trigger Input Pulse width: 10uS
* Dimension: 45mm x 20mm x 15mm

1. **IR Distance Sensor**

* Size: 3.5x 1cm
* Work Power : 5V DC
* Detector distance:10MM
* Built-in TCRT5000 Sensor NSOR

1. **L298N Motor Driver**

* Driver chip: L298N dual H-bridge driver chip
* Terminal driver part of the supply area VMS: +5V ~ +35V
* Drive part of the peak current Io: 2A / Bridge
* Logical part of the terminal power supply range Vss :4.5-5 .5V
* Logical part of the operating current range: 0 ~ 36mA
* The control signal input voltage range: 4.5-5.5V low 0V high
* Maximum power consumption: 20W
* Storage temperature: -25 ~ +130
* Driver Board Size: 55mm \* 60mm \* 30mm
* Driver board Weight: 33g

1. **DC Motor (Traverse & Spinner motor)**

* Voltage range: 3V - 12V DC
* Rated voltage: 12V
* No load speed: 20160
* No load current: 680MA
* Maximum current: 3.8A
* Rated torque: 600G.for CM
* Rated power: 20W
* Starting torque: 1000G. for CM
* Shaft Diameter: 2mm
* Shaft Length: 10mm
* Length: 47mm
* Width: 30mm

1. **A4988 Stepper Motor Driver**

* It is suitable for driving stepper motors of 8V~35V 2A or less
* Only simple step and direction control interface
* Five different stepping modes: full, half, 1/4, 1/8 and 1/16
* The adjustable potentiometer can adjust the maximum current output to obtain a higher step rate
* Automatic current decay mode detection/selection
* Overheat shutdown circuit, under-voltage lockout, cross-current protection
* Ground short circuit protection and load short circuit protection

1. **Stepper Motor**

* Product Type: Bipolar Nema 17 Stepper Motor
* Size: 42\*42\*38mm
* Phase: 2 Phase
* Step Angle: 1.8 deg
* Working voltage: DC 9-42V
* Rated Current/phase: 1.5A
* Holding Torque: 42N.cm (60oz.in)
* Insulation Class: B(130℃)
* Step angle accuracy: +/- 5%(full step,not load)
* Resistance accuracy: + - 10%
* Inductance accuracy: + - 20%
* Temperature rise: 80deg Max(rated current,2 phase on)
* Ambient temperature: -20deg ~+50deg
* Insulation resistance: 100M Min,500VDC
* Insultion Strength: 500VAC for one minute.
* Maximum no load Starting frequency: ≥ 1500PPS.
* Maximum No Load Operating frequency: ≥ 1900 PPS
* Insulation resistance: ≥100 MΩ(DC 500V)
* Electrical limit: AC600V/1mA/1S.
* Connection: Black(A+), Green(A-), Red(B+), Blue(B-) 4 Wires

1. **I2C 20x4 LCD**

* LCD display module with blue backlight.
* Wide viewing angle and high contrast.
* Built-in industry standard HD44780 equivalent LCD controller.
* LCM type: Characters
* Can display 4-lines X 20-characters.
* Voltage: 5V DC.
* Module dimension: 80mm x 35mm x 11mm.
* Viewing area size: 64.5mm x 16mm
* 1602 I2C interface 4-wire 1602 screen
* IO port of control board is only 20, so IO ports is not enough for many sensor, SD card, relay modules.
* The original 1602 screen need 7 IO ports to drive up, and this module can save 5 IO ports

1. **Boost Converter**

* Model: DSN6009 boost module
* Module Properties: Non-isolated boost (BOOST)
* Rectification: Non-Synchronous Rectification
* Input Range: 3V ~ 32V
* Output Range: 5V ~ 35V
* Input Current: 5A (max),
* Conversion efficiency: <94%
* Switching frequency: 400KHz
* Output Ripple: 50mV
* Load Regulation: +/-0.5%
* Voltage Regulation: +/-0.5%
* Operating Temperature: -40 degree to +85 degree
* Body Size: 43 x 20 x 12mm/1.7" x 0.8" x 0.47"(L\*W\*T)

1. **Li-Po Battery**

* Venom 1548 - DRIVE 6C 7.2V NiMH Battery, 5000mAh, UNI 2.0 Plug
* Venom UNI 2.0 Land Plug System. Compatible with XT60 Plug, Traxxas Plugs, Deans Plug & EC3 Plug Balance Connector
* Specs: Length: 5.39" (137mm), Width: 1.77" (45mm), Thickness: .94" (23.9mm), Weight: 14.4 oz (408g)
* Nominal Voltage: 7.2V
* Nominal capacity: 10Ah
* Charging voltage: 8.4V
* Charging current: ≤10A
* Discharging current: 7A
* Instant discharging current: 9A

1. **TP4056 Charge Controller**

* Input Interface: Micro USB port
* Charging method: linear charge.
* A full charge voltage: 4.2V.
* Charge Current: 1A (default), modify the onboard resistor to adjust the charging current
* Charging accuracy: 1.5%.
* Charging indicator: Blue LED charging, Red LED full.
* Dimensions: 22 x 17mm.

1. **Solar Panel**

* solar type : Polysilicon solar cell
* Working current: 0-0.5 (A)
* Working voltage : 6V
* Short circuit current : 0.5 (A)
* Open circuit voltage : 7.5 (V)
* Conversion efficiency : 18 (%)
* Size 13.5 cm x 22 cm
* Wire length approx : 2mt
* dc plug size: 2.1mm