|  |  |  |  |
| --- | --- | --- | --- |
| **Pin Type** | **Arduino Mega Pin** | **External Connection** | **Purpose** |
| **Serial** | 0 | USB Serial RX | Receive USB Comms via PC |
| 1 | USB Serial TX | Transmit USB Comms via PC |
| **PWM** | 2 | Xbee Shield RX | Receives data through antenna |
| 3 | Xbee Shield TX | Transmits data through antenna |
| 4 | Color Sensor S0 | Red frequency reader |
| 5 | Color Sensor S1 | Green frequency reader |
| 6 | Color Sensor S2 | Blue frequency reader |
| 7 | Color Sensor S3 | Clear frequency reader |
| 8 |  |  |
| 9 | L298N Wheels | Left Wheel IN1 PWM |
| 10 | L298N Wheels | Left Wheel IN2 PWM |
| 11 | L298N Wheels | Right Wheel IN3 PWM |
| 12 | L298N Wheels | Right Wheel IN4 PWM |
| 13 |  |  |
| **UART** | 14 | Mega Serial3 TX | Transmits data to Xbee Shield |
| 15 | Mega Serial3 RX | Receives data from Xbee Shield |
| 16 |  |  |
| 17 |  |  |
| **Interrupts** | 18 | Left Wheel Encoder | Left encoder interrupt 1 |
| 19 | Left Wheel Encoder | Left encoder interrupt 2 |
| 20 | Right Wheel Encoder | Right encoder interrupt 1 |
| 21 | Right Wheel Encoder | Right encoder interrupt 2 |
| **Digital** | 22 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 23 | A4988 1 | Turret STEP |
| 24 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 25 | A4988 1 | Turret DIR |
| 26 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 27 | A4988 2 | Z-axis STEP |
| 28 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 29 | A4988 2 | Z-axis DIR |
| 30 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 31 | A4988 3 | Arm STEP |
| 32 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 33 | A4988 3 | Arm DIR |
| 34 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 35 | A4988 4 | Wrist STEP |
| 36 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 37 | A4988 4 | Wrist DIR |
| 38 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 39 |  |  |
| 40 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 41 |  |  |
| 42 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 43 |  |  |
| **PWM** | 44 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 45 |  |  |
| **Digital** | 46 | QTRX 13-LED Dig. Input | Line following array LED reading |
| 47 |  |  |
| 48 | QTRX Digital Output | Controls array LED lights |
| 49 |  |  |
| 50 |  |  |
| 51 |  |  |
| 52 |  |  |
| 53 | Electromagnet Output | Activates magnetic gripper |
| **Analog** | A0 |  |  |
| A1 |  |  |
| A2 |  |  |
| A3 |  |  |
| A4 |  |  |
| A5 |  |  |
| A6 |  |  |
| A7 |  |  |
| A8 | Hall Effect Sensor 1 | Platform Checker |
| A9 |  |  |
| A10 |  |  |
| A11 | Strain Gage | Detects probe interaction with external objects |
| A12 |  |  |
| A13 |  |  |
| A14 |  |  |
| A15 | Distance Sensor | Reads analog distance sensor voltage |