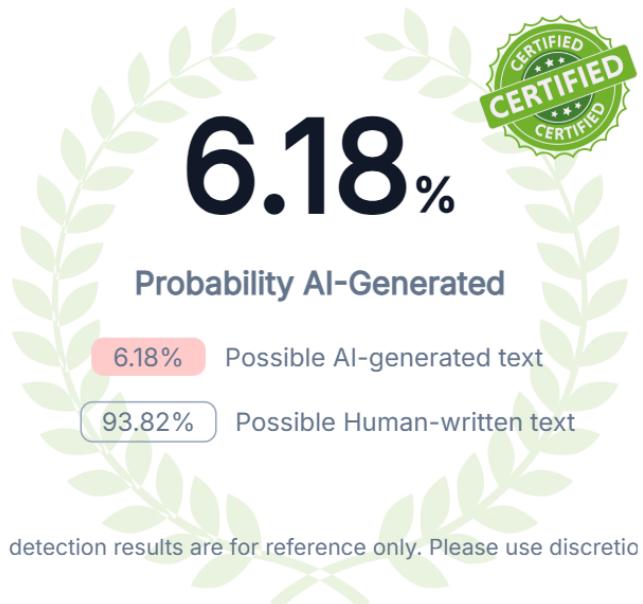




## NoteGPT Certification



### 3.3.4 Power Supply Design

A power supply that provides a voltage was used for both the logic and motor parts of the circuit. The design took into account the voltage and current needs of each part:

- The Arduino works at a logic voltage.
- The motor driver gets a voltage that is good for DC motors.

The circuit parts share a ground to make sure signals are referenced correctly. **The design also made sure to prevent voltage drops and electrical noise from the motor.**

### 3.3.5 Noise Reduction and Signal Integrity

To make the circuit more reliable the design included:

- wires for signals to reduce interference
- All modules are grounded properly
- The power paths for logic and motor are separate
- The PWM and sensor lines are routed carefully

These steps helped to get stable readings from sensors, accurate processing of logic and smooth response, from motors.

### 3.3.6 Overall Circuit Functionality

With all parts connected here is how the circuit works:

- The IR sensors find the line and make signals.
- The microcontroller reads these signals. Finds the robots position.
- It sends control signals to the motor driver.