```
#include <Pixy2.h>
Pixy2 pixy;

#include <stdlib.h>
#include <ctype.h>

// Motor pin configurations
int AENA = 6;
int Apin1 = 4;
int Apin2 = 5;
int BENA = 3;
int Bpin1 = 2;
int Bpin2 = 7;

// Middle position for camera
int middle = 157;

// Variables for tracking position difference
int difference;
int i;

// Variables for motor adjustments
int adjustRight = 0;
int adjustLeft = 0;
int rightMotorPower = 255;
int leftMotorPower = 255;

// Variable for tracking blocks (unused)
static int blocks;

// Setup function, runs once when the device starts
void setup() {
  Serial.begin(9600);
  pixy.init();
  Serial.readString();
}

// Loop function, runs repeatedly
void loop() {
  // Delay for 5 seconds
```

```
delay(5000);

// Check if serial data is available
while (!Serial.available()) {
  // Get block information from Pixy2
  pixy.ccc.getBlocks();
  // If blocks are detected
  if (pixy.ccc.numBlocks) {
    // Loop through each detected block
    for (i=0; i<pixy.ccc.numBlocks; i++) {
      // Calculate difference from middle position
      difference = middle - pixy.ccc.blocks[i].m_x;
      // Print difference to serial monitor
      Serial.println(difference);
    }
    // Adjust motor based on difference
    if (difference < -25) {
      stop();
      delay(100);
      camRight();
    }
    if (difference > 25) {
      delay(100);
      camLeft();
    }
    if (difference < 25 && difference > -25) {
      Serial.println("fullspeed");
      drive();
    }
    // If blocks are detected and center is true, stop motors
    if (pixy.ccc.numBlocks) {
      stop();
      delay(10000);
    }
  } else {
    // If no blocks detected, set motors to full speed forward
    analogWrite(AENA, 255);
    analogWrite(BENA, 255);
    digitalWrite(Apin1, LOW);
    digitalWrite(Apin2, HIGH);
```

```
      digitalWrite(Bpin1, HIGH);
      digitalWrite(Bpin2, LOW);
    }
  }
}

// Function to adjust camera right
void camRight() {
  Serial.println("camera right");
  adjustRight = map(difference, -1, -158, 1, 255);
  rightMotorPower = 255 - adjustRight;
  driveRight();
  pixy.ccc.getBlocks();
  if (pixy.ccc.numBlocks) {
    for (i=0; i<pixy.ccc.numBlocks; i++) {
      difference = middle - pixy.ccc.blocks[i].m_x;
      Serial.println("2nd: ");
      Serial.println(difference);
    }
  }
}

// Function to drive right
void driveRight() {
  digitalWrite(Apin1, HIGH);
  digitalWrite(Apin2, LOW);
  digitalWrite(Bpin1, HIGH);
  digitalWrite(Bpin2, LOW);
  analogWrite(AENA, rightMotorPower);
  analogWrite(BENA, 255);
  delay(100);
}

// Function to adjust camera left
void camLeft() {
  Serial.println("camera left");
  adjustLeft = map(difference, 1, 157, 1, 255);
  leftMotorPower = 255 - adjustLeft;
  driveLeft();
  pixy.ccc.getBlocks();
```

```
  if (pixy.ccc.numBlocks) {
    for (i=0; i<pixy.ccc.numBlocks; i++) {
      difference = middle - pixy.ccc.blocks[i].m_x;
      Serial.println("2nd: ");
      Serial.println(difference);
    }
  }
}

// Function to drive left
void driveLeft() {
  digitalWrite(Apin1, HIGH);
  digitalWrite(Apin2, LOW);
  digitalWrite(Bpin1, HIGH);
  digitalWrite(Bpin2, LOW);
  analogWrite(AENA, 255);
  analogWrite(BENA, leftMotorPower);
  delay(100);
}

// Function to drive forward
void drive() {
  digitalWrite(Apin1, HIGH);
  digitalWrite(Apin2, LOW);
  digitalWrite(Bpin1, HIGH);
  digitalWrite(Bpin2, LOW);
  analogWrite(AENA, 250);
  analogWrite(BENA, 255);
}

// Function to stop both motors
void stop() {
  digitalWrite(Apin2, LOW);
  digitalWrite(Apin1, LOW);
  digitalWrite(Bpin2, LOW);
  digitalWrite(Bpin1, LOW);
}
```