LISTING PROGRAM

```
#include <NewPing.h>
#include <SoftwareSerial.h>

#define TRIGGER_PIN 4
#define ECHO_PIN 5
#define MAX_DISTANCE 200
#define BUZZER_PIN 10
#define VIBRATION_PIN 9
#define ALERT_1 100
#define ALERT_2 50
#define ALERT_3 25

NewPing sonar(TRIGGER_PIN, ECHO_PIN, MAX_DISTANCE);
SoftwareSerial mySerial(6, 7);

void sendCommandToMP3(uint8_t command, uint8_t param1, uint8_t
param2) {
    uint8_t packet[] = {0x7E, 0xFF, 0x06, command, 0x00, param1,
param2, 0xEF};
    for (uint8_t i = 0; i < 8; i++) {
        mySerial.write(packet[i]);
    }
    delay(200);
}

void setup() {
    Serial.begin(9600);
    mySerial.begin(9600);
    pinMode(BUZZER_PIN, OUTPUT);
    pinMode(VIBRATION_PIN, OUTPUT);

    sendCommandToMP3(0x3F, 0x00, 0x00);
    sendCommandToMP3(0x06, 0x00, 0x1E);
    Serial.println("Setup complete.");
}

void loop() {
    int distance = sonar.ping_cm();
    Serial.print("Distance: ");
    Serial.print(distance);
    Serial.println(" cm");

    if (distance > 0 && distance <= ALERT_1) {
        digitalWrite(VIBRATION_PIN, HIGH);
        digitalWrite(BUZZER_PIN, HIGH);
```

```
        if (distance > ALERT_2) {
            // 50 - 100 cm: Slow buzzer, light vibration, "Hati
hati."
            sendCommandToMP3(0x12, 0x00, 3); // Play "Hati hati."
            delay(2000);
        } else if (distance > ALERT_3) {
            // 25 - 50 cm: Fast buzzer, stronger vibration,
"menghindar."
            sendCommandToMP3(0x12, 0x00, 2); // Play "menghindar."
            delay(1500);
        } else {
            // < 25 cm: Continuous buzzer, strong vibration,
"Berhenti!"
            sendCommandToMP3(0x12, 0x00, 1); // Play "Berhenti!"
            delay(1000);
        }
    } else {
        // No obstacle detected or beyond 100 cm
        digitalWrite(VIBRATION_PIN, LOW);
        digitalWrite(BUZZER_PIN, LOW);
        sendCommandToMP3(0x16, 0x00, 0x00); // Stop playback
    }
    delay(300);
}
```