Sparklin' Clean

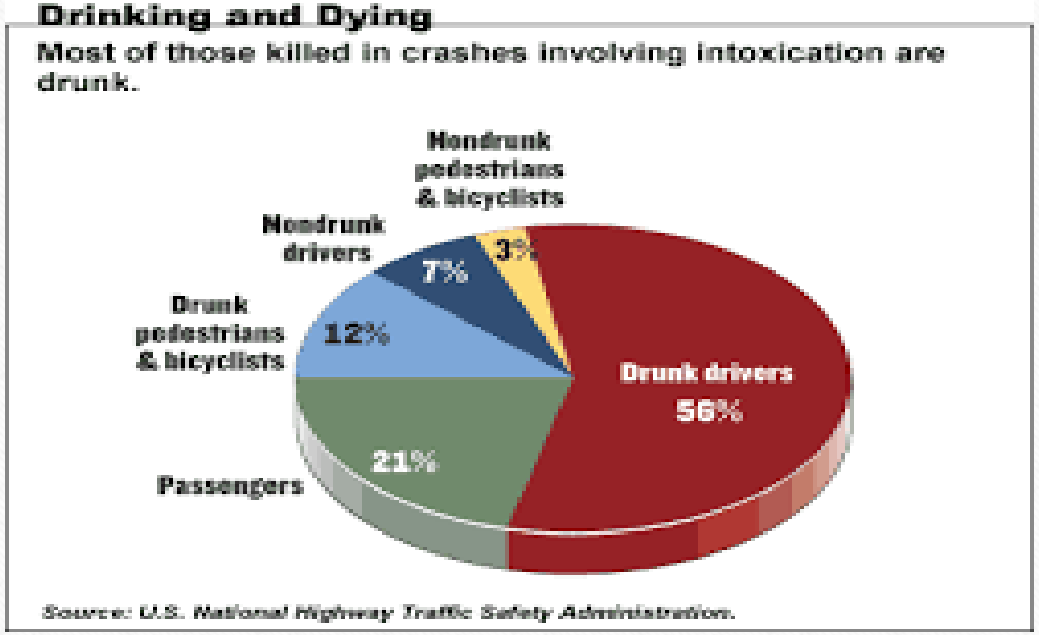
I make your car as good as new

IDEA:

Optimized automatic car cleaning anywhere, everywhere with just a click from your phone or a button in the car without human interference

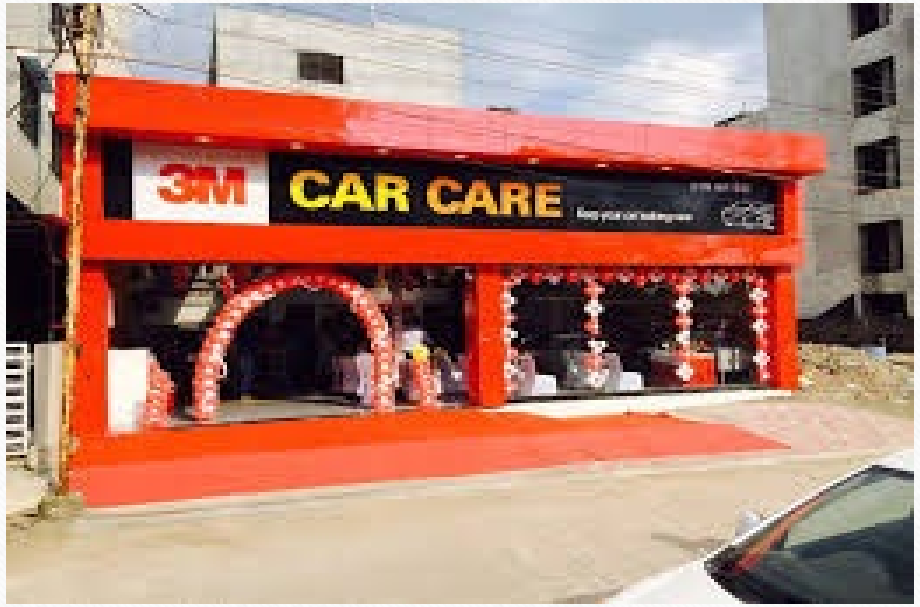
STATISTICS:

A cop on April 2nd 2012 was sleeping in his car after a long tiring day at night after his patrolling his done when unknowingly the gases as carbon monoxide was released into the air because of heating coils in car engines got rusty and old and a life was lost



EXISTING:

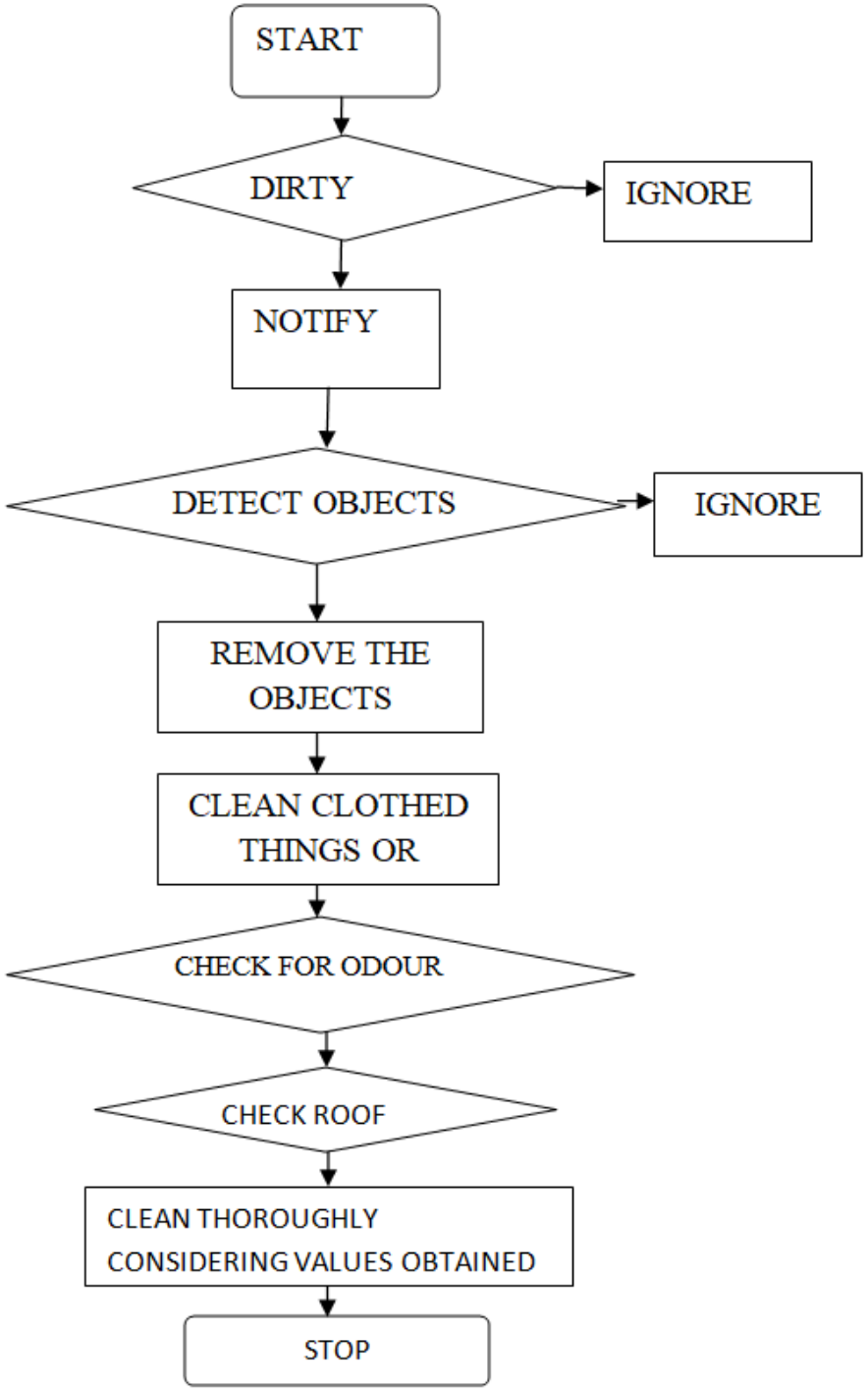
3M car care is already operating in the same field



SOLUTION APPROACH:

- Notify user
- Detect objects
- Clean clothed things and dusting
- Sense for odours and gases
- Check the roof
- Door contains the cleaning goods
- Clear the dirt in doors
- Floor board is vacuumed
- Checks the engine
- Drug testing

WORKFLOW:


START
DIRTY
IGNORE
NOTIFY
DETECT OBJECTS
IGNORE
REMOVE THE OBJECTS
CLEAN CLOTHED THINGS OR
CHECK FOR ODOUR
CHECK ROOF
CLEAN THOROUGHLY CONSIDERING VALUES OBTAINED
STOP

TECHNOLOGY & SENSORS:

- PIR (Parser Infrared sensor)->for object movement detection
- TGS2602 ->Air contaminates sensor-> for detecting the odour and its strength
- CV-5000 Series models are equipped with advanced defect detection algorithms that eliminate many of the instabilities normally associated with surface appearance inspections. Movement detection
- All plastic parts can be cleaned by using degreaser
- MQ3 sensors used for alcohol detection

PIR (PARSER INFRARED SENSOR)

PIR | Arduino 1.8.9 (Windows Store 1.8.21.0)

File Edit Sketch Tools Help

PIR §

```
int led = 13;                // the pin that the LED is atteched to
int sensor = 2;              // the pin that the sensor is atteched to
int state = LOW;             // by default, no motion detected
int val = 0;                 // variable to store the sensor status (value)

void setup() {
  pinMode(led, OUTPUT);      // initalize LED as an output
  pinMode(sensor, INPUT);    // initialize sensor as an input
  Serial.begin(9600);        // initialize serial
}
void loop(){
  val = digitalRead(sensor);   // read sensor value
  if (val == HIGH) {           // check if the sensor is HIGH
    digitalWrite(led, HIGH);   // turn LED ON
    delay(100);                // delay 100 milliseconds

    if (state == LOW) {
      Serial.println("Motion detected!");
      state = HIGH;       // update variable state to HIGH
    }
  }
  else {
      digitalWrite(led, LOW); // turn LED OFF
      delay(200);             // delay 200 milliseconds

      if (state == HIGH){
        Serial.println("Motion stopped!");
        state = LOW;       // update variable state to LOW
    }
  }
}
```

Done compiling.

```
Sketch uses 2282 bytes (7%) of program storage space. Maximum is 32256 bytes.
Global variables use 222 bytes (10%) of dynamic memory, leaving 1826 bytes for local variables. Maximum is 2048 bytes.
```

5 Arduino/Genuino Uno on COM4

- For object movement detection
- Will take 1826 bytes = 1.8KB~2KB

Principle:

- This sensor detects the infrared light radiated by a warm object. It consists of pyro electric sensors which introduce changes in their temperature into electric signal. When infrared light strikes a crystal, it generates an electrical charge.

TGS2602

TGS2602 | Arduino 1.8.9 (Windows Stor...

File Edit Sketch Tools Help

TGS2602

```
/* The LED to blink. */
const int led = 13;
void setup() {
  Serial.begin(9600);
  pinMode(led, OUTPUT);
}
const double rl = 44.2*1000;
/* The input current. */
const double vc = 5.0;
/* The LED blink period. */
double period = 1000.0;
void toggle_led()
{
  static int led_state = LOW;
  if (led_state == LOW) {
    led_state = HIGH;
  }
  else {
    led_state = LOW;
  }
  digitalWrite(led, led_state);
}
double calc_ohms(
  unsigned int sample_count,
  unsigned int sample_delay,
  boolean verbose)
{
  unsigned int i;
  unsigned int now;
  unsigned long last_blink;
```

Done compiling.

```
Sketch uses 4492 bytes (13%) of program storage spac
Global variables use 372 bytes (18%) of dynamic memo
```

TGS2602 | Arduino 1.8.9 (Windows Stor...

File Edit Sketch Tools Help

TGS2602 §

```
    }
    now = millis();
    if (now - last_blink >= period) {
      toggle_led();
      last_blink = now;
    }
  }
  vout = ((double)sum) * vc/1023 / ((double)samp
  return vc*rl/vout - rl;
}
void loop()
{
  double r0;
  double ratio;
  double rs;
  Serial.println("Calibrating, keep the air qual
  r0 = calc_ohms(20, 1000, true);
  Serial.print("\nCalibration: base resistance r
  Serial.print(r0, 1);
  Serial.println(" ohms");
  while (true) {
    rs = calc_ohms(500, 1, false);
    ratio = rs/r0;
    Serial.print("rs (current resistance, ohms):
    Serial.println(rs, 3);
    Serial.print("ratio rs/r0 (lower == more sub
    Serial.println(ratio, 3);
     period = 1000.0/10.0 * ratio;
  }
}
```

Done compiling.

```
Sketch uses 4492 bytes (13%) of program storage spac
Global variables use 372 bytes (18%) of dynamic memo
```

- Will take 1676 bytes = 1.6KB~2KB
- This Arduino program functions as a air quality and contamination detector.
- It measures the levels of various hazardous gases in the air. It measures these using a circuit that lowers its resistance in the presence of these gases.
- Thus, by taking a ratio of the measured resistance and the calibrated normal resistance, we can get a rough estimate of the levels of a particular hazardous gas

MQ3 SENSORS

MQ3 | Arduino 1.8.9 (Windows Store 1.8.21.0)

File Edit Sketch Tools Help

MQ3 §

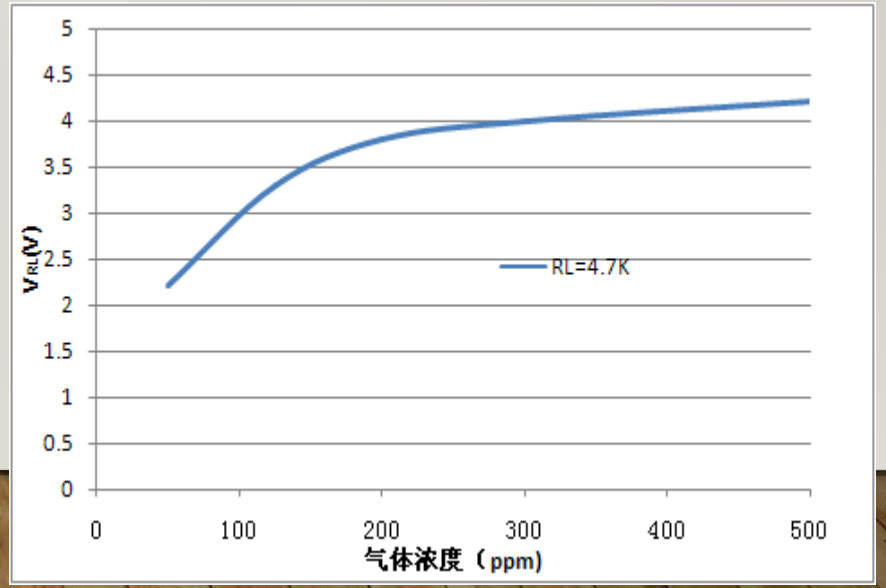
```
const int AOUTpin=0;//the AOUT pin of the alcohol sensor goes into analog pin A0 of the arduino
const int DOUTpin=8;//the DOUT pin of the alcohol sensor goes into digital pin D8 of the arduino
const int ledPin=13;//the anode of the LED connects to digital pin D13 of the arduino

int limit;
int value;

void setup() {
  Serial.begin(115200);//sets the baud rate
  pinMode(DOUTpin, INPUT);//sets the pin as an input to the arduino
  pinMode(ledPin, OUTPUT);//sets the pin as an output of the arduino
}

void loop()
{
  value= analogRead(AOUTpin);//reads the analaog value from the alcohol sensor's AOUT pin
  limit= digitalRead(DOUTpin);//reads the digital value from the alcohol sensor's DOUT pin
  Serial.print("Alcohol value: ");
  Serial.println(value);//prints the alcohol value
  Serial.print("Limit: ");
  Serial.print(limit);//prints the limit reached as either LOW or HIGH (above or underneath)
  delay(100);
  if (limit == HIGH){
    digitalWrite(ledPin, HIGH);//if limit has been reached, LED turns on as status indicator
  }
  else{
    digitalWrite(ledPin, LOW);//if threshold not reached, LED remains off
  }
}
```

Done compiling.

```
Sketch uses 2518 bytes (7%) of program storage space. Maximum is 32256 bytes.
Global variables use 216 bytes (10%) of dynamic memory, leaving 1832 bytes for local variables. Maximum is 2048 bytes.
```

23 Arduino/Genuino Uno on COM4

- Will take 1832 bytes = 1.8KB~2KB
- This sensor is useful for testing levels of alcohol, benzine, hexane or LPG in the air but it is most popularly used as a breathalyzer for someone who drank beer, wine or other liquor.



DEGREASER

- A degreaser is a solvent-based or solvent-containing cleaning agent.
- It is a chemical product mostly used for the removal of water-insoluble substances such as grease, paint, oil, lubricants, corrosive products, abrasive dust and all other organic films.
- Degreasers can be used in a variety of industries such as aircraft, automotive, nuclear power plants, pharmaceutical, paint, printing, transportation, optics, marine and semiconductor.

COST:

- PIR – Rs. 78
- TGS2602 – Rs. 978
- CV 5000 Series system - Rs. 8218
- Degreaser Liquid - 512
- MQ3 sensors – Rs. 150

POSITIVES:

- No Manual or reduced manual involvement
- Car isn't required to be sent or taken to the service centre
- Monthly or immediate cleaning can be done as soon as damage takes place
- No cost or maximum reduced cost
- Low life risk failure


Thank
you!!