MoT and GST: Vehicle Inspection Project

Pollution Under Control or PUC Certificate is one of the Mandatory / Legalising / Authentication Certificate for Vehicle (Enforcement pollution control by introducing the new emission norms By Nation).
Objectives of the Project (BOT)

1. Improvement of vehicle inspection and the grating of transport permits

2. Availability of National Fleet data

3. Improving Road Safety

4. Capacity building
Advantages of the project

Advantages of proposed project:

➢ Existence of national fleet data.

➢ Reductions in exhaust emissions from in-use vehicles.

➢ Reduction in fuel consumption.

➢ Source of database on emissions performance of on-road vehicles.

➢ Identification and accountability of on-road vehicles.

➢ Securing smooth road traffic of motor vehicles.

➢ Enhancement of user’s awareness for vehicle safety and vehicle life.
Component of proposed system

- Pollution Under control
- Vehicle Permit
- Fitness Testing
1. PUC Certificate Issuance System
Key Modules for Pollution Under Control for Vehicles

- Registration Module
- PAYMENT
- Vehicle Inspection Schedule
- Vehicle Inspection
- Personalization PUC Data Sticker
- Analytical Reports
- Periodic Reminders

www.gst-systems.com
Flow of Proposed PUC System

Capture Vehicle Details
1. Capture Image
2. Preprocess
3. Detection of Number Plate
4. Character Recognition
5. Captured Vehicle Details

PUC Certificate Generation
- Vehicle Validation
  - Valid
  - Vehicle Go Through Various Test Parameters
  - Vehicle PUC Test
  - Pass
  - PUC Certificate Issued
  - Not Valid
    - Please Check The Valid Reason of Rejection
  - Fail
    - Vehicle has to submit Valid Fitness Testing Report for Issuance PUC Certificate

Vehicle Fitness & Maintenance
Pollution Under Control (PUC) System - Overview

Visa Like Stickers issued after Testing & Pasted in the Passport like Vehicle Log Book

www.gst-systems.com
Procedure for PUC tests

A. For Diesel vehicles:
   ➢ The accelerator should be fully pressed.
   ➢ The reading of pollution levels should be noted with the acceleration pedal fully pressed.
   ➢ The average of five readings is considered as the Final Reading

B. For Petrol vehicles:
   ➢ The vehicle is kept idling without the accelerator pressed.
   ➢ Only one reading is taken.
Equipment for Proposed PUC Using OCR

PUC using OCR systems normally consist of the following elements:

1. **Camera**: Takes image of a vehicle from either front or rear end. (16 mega pixel camera)

2. **Computer**: Normally a PC running Windows is used. It runs the License Plate Recognition application that controls the system, captures the images, analyzes and identifies the License plate, and interfaces with other applications and systems.

3. **Hardware**: PC, Gas Sensor mq7 (CO sensor), at mega16 processor.

4. **Software Tool**: Optical Character Recognition using template matching (Mat lab)

5. **Database**: The events are recorded on a local database or transmitted over the network.

   The data consist of the recognition results of the vehicle.
Any company that owns an automotive workshop or a filling station can apply to become a PUC center. Their application will be approved provided that:

➢ They have funds to buy an approved emissions analyzer.
➢ They have at least one designated technician (Which is trained by GST).
➢ The technician must be a qualified motor mechanic and must be trained by GST.
➢ The terms and conditions of the authorization contain the very limited center operating manuals and procedures.
➢ All of the PUC centers in principle will be test-only centers. However, in practice they are allowed to conduct minor adjustments to the engines (such as changing the fuel/gas mixture) to get the vehicle through the test.
The canters are mainly established in one of the following modes:

➢ Mobile units principally stationed at major intersections.
➢ Fixed units in filling stations.
➢ Fixed units in automotive workshops.

There is a requirement for each PUC Centre to contract an annual maintenance program with the GST and for this to include a gas calibration (for gas analyzers) or a filter calibration (for smoke analyzers) every 6 months. GST will put in place a calibration audit program sure compliance.

GST has developed a computerized data collection system for the PUC.
Why it is important to have a PUC certificate

The environment needs it
We have obligations to the future generations of Burundi to keep the environment clean and green.

Global warming
Oil and gas used in transportation are the major factors contributing to it.

Old vehicles
The exponential growth of vehicle population and dominance of old vehicles running on the Burundi roads is a major contributor towards the pollution. It is required to control the pollution by issuing PUC vehicles.

What future implications it will have?
A famous quote reads “We are living on the planet as if we have another one to go”. Since this is sadly not the case, norms like PUC compliance will go great lengths to curb pollution and make Earth a more comfortable place to live.
Key Benefits of PUC System for Vehicles

1) Central Database of all the Vehicles with their key attributes such as Capacity, Fuel type, Make, age, GPS location etc.

2) Information regarding the emission by each Vehicle. (This can help collate data for emission in a geography- giving the agencies powerful tools to put in place control mechanism).

3) Auto Reminders to owners of Vehicles to renew the PUC certificates.

4) Proper accountability of revenue due to the government.

5) Available data can help government to ensure proper compliance of PUC regulations by use of the data available thru the system.
2. Vehicle Permit Issuance System
Vehicle Permits

Vehicle Permits is mandatory for the commercial vehicles and obtain the permit and use it in accordance with the conditions of the permit granted or countersigned by the Transport Authority.

Applications for permits are available in the office provided by the Transport Authority. The applicant must bring all the supporting documents (Old Vehicle Permit, Vehicle Insurance, Vehicle Control Technique).

There are different categories of permit:

- Local Permit
- International Permit
Vehicle Permits Flow

Log Book and Vehicle Permit Issuance System Flow

1. Payment Request Generation
2. Payment in the Bank
3. Data Capture
4. Data Verification
5. Approval
6. Personalisation
7. Quality Assurance
8. Handover
9. Digital Archiving

Process End
3. Vehicle Inspection System
Vehicle Fitness Certificate

All transport vehicles shall carry valid fitness certificate to ply on road. The owner shall apply for issuance of fitness certificate along with prescribed fee, Application Form, Insurance Certificate, Vehicle Registration, Vehicle Permit for commercial vehicle. The Inspector of motor vehicle will inspect the vehicle particularly on the basis of following aspects:

- Steering system
- Suspension system
- Lamps
- Brake system
- Engine
- Power train system
- Frame and Body
- Fuel system
- Electric system
- Running system
Vehicle Permits Flow

Log Book and Vehicle Control Technique Sticker Issuance System Flow

Payment Request Generation
  ↓
Payment in the Bank (OBR)
  ↓
DataCapture First time
  ↓
Document Verification

Vehicle will go for Fitness Testing (OTRACO GARAGE)
  ↓
Job card will be issued to tick the test conduct & Job done for the vehicle and officer will enter all details into system and Generate a Receipt against the job done
  ↓
Bank will receive the payment as per the job card done by OTRACO
  ↓
Approval
  ↓
Personalisation
  ↓
Quality Assurance
  ↓
Handover
  ↓
Digital Archiving
  ↓
Process End
System Components

The System has two main Components:

1. **Issuance of Transport Permit (Domestic and International)**
2. **Issuance of Vehicle Fitness test Certificates**

*Note:* GST will provide forge proof security printed Vehicle Logbook (Passport Type) and Stickers like visa.
Permits Stickers - Security Features

1. Scan Letter
2. Rainbow Colour
3. Security Design
4. Security Cut
5. Guilloche Design
6. Intaglio Design
7. Micro Text
8. Security Number
9. Invisible Logo
10. Invisible Fibre
11. Visible Fluorescent Fibre
12. Hologram
SAFETY

We want every journey that you make to be a safe one. Inspecting your vehicle at least twice a year will ensure that it is safe to drive. Frequent Inspection certifies the roadworthiness of the vehicle, which indicates that the vehicles are safe to be on the road.

ENVIRONMENT

Vehicles emit smoke and dangerous gases that pollute the environment. Our emissions inspection ensures your vehicle does not discharge excessive amount of harmful gases. Certifying that vehicles that emit dangerous gases and smoke are off the road and the environment is safe for road users.

CONFIDENCE

After your vehicle has passed an inspection at OTRACO with new systems, you can drive assured and confident that it is fit for the road. With all vehicles inspected, road users can be assured that only road worthy vehicles are on the road.
MoT and GST, TOGETHER WE CAN.

CONTACT US

Project Coordinator: NYANDWI Edouard
Email: nyandwiedouard@gmail.com
www.gst-systems.com, info@gst-systems.com