Lightricks

Company Vehicle Tracker

Overview:

Lightricks owns a few vehicles that are occasionally used by various employees for work-related rides. Before an employee uses one of the cars he first needs to pre-allocate it. When the employee begins a ride and after he finishes it, he needs to send a ride report via email to a designated email box. The report should contain the following details:

1. The employee's identity.
2. The car license plate number.
3. The date and time.
4. The odometer read.
5. The parking location.

The Problem:

This reporting procedure has a few issues. It is tedious, thus sometimes forgotten or ignored. It is prone to human errors and not all employees stick to a uniform email format, which makes it harder to track report emails by eye. An additional issue is that employees tend to be generic when they describe the parking spot, while we prefer it to be as specific as possible so the next employee who picks the car will find it easily.

The Suggested Solution:

In order to make the employees' life easier but without losing the ability of the company to know where every car is parked and who is currently using it (or who was the last one to use it), we want to simplify the reporting process for the employee by automating it. We will start with a relatively simple solution that harnesses existing and available technologies.

In order to assist the automation of generating the reports on each car's dashboard, we will stick 2 stickers:

1. A sticker with the car's license plate number.
2. A sticker that bounds the odometer display with red rectangle.

Now the reporting process can be very simple: The employee should take a picture of the vehicle dashboard with both stickers and the odometer clearly visible, she then

sends the image to a designated email box and that's all. No need to manually type in anything, all the required information is already in attached to this email.

Requirements:

In this exercise you'll design and build a system for tracking the company's vehicle fleet. Your job is to implement an application that will process the email reports given as files, extract all 5 required fields and save them to a file.

Detailed Application Requirements:

1. The input for the application will be a path to a report file, given as a command line argument.
2. The application will process the report email and append all the required report data (5 pieces on information mentioned above) to a "log" file.
3. The log file format should be human readable but it should also have a well defined format that can be easily parsed by a program, for example CSV.
4. The application should gracefully report its completion status.

Definitions and assumptions:

1. Emails will be provided as textual EML files, in the format specified by RFC 822, containing all the email's MIME data and attachments.
2. The images attached to the emails will be in JPEG format and they will be Geotagged by the sender, meaning GPS coordinates will be found in the image EXIF metadata.
3. The car license plate sticker on the dashboard will be encoded as QR code.

You can assume that the images attached to the EML files will always be in the right orientation, meaning they will not be rotated sideways or upside-down. Few examples of EML files are attached to this document for you to test your solution.

You are allowed and encouraged to use external libraries that can assist you with complex tasks like extracting metadata from the image EXIF, parsing the QR code or identifying and parsing the odometer read from the dashboard image.

Good Luck :)