

Report:

I. Moroccan national ID card structure:

Definition:

An official document that proves that the identity of the card holder is Moroccan

Versions:

1. Legacy card:

- **Front side:**

Field	Type	Validation
User Picture	LONGBLOB	640 x 480 pixels
Id	String	Size: 50 Starts with two letters followed by six digits: <code>^[A-Z]{2}\d{6}</code>
First name	String	Size 100
Last name	String	Size 100
Birthday	DATE	Should be less than the current year by 12 (all holders of id card have at least 12 years old)
Birth place	String	Size 50
Date of expiration	DATE	Should be strictly superior to the current date or it is invalid

Signature: picture	LONGBLOB	Should be the same for all IDs
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- **Back side:**

Field	Type	Validation
Father's name	String	200 (two names, the father and the father of the father)
Mother's name	String	200 (two names, the mother, and the father of the mother)
Address	String	Size=200 Should have digits at the beginning: $\wedge d\{1,5\} s w +$
Gender	String	Size: 10 Must be 'M' or 'F'
Civil status number	String	Size:50 Starts with digits slash the year of birth: $\wedge d\{1,5\} \backslash d\{4\}$
Bar code	String	Size: 50 The length of the field would depend on the amount of data actually encoded in the bar code

2. Smart card:

The smart ID card replaced the old one to ensure more security, to reduce cases of fraud and identity theft, and to add more functionalities:

The new fields are identical to the old ones except for some changes stated below:

- Two codes added (one at the front and one at the back).

- The age of users changed, now the card can be accessible to minors less than 12 years old after the request of their legal representatives; it should be renewed at the age of 12.
- The bar code is replaced by an automatic reading zone (MRZ zone), for the automatic lecture of data from the front and the back.
- The user can request to add a particular field, at the level of the electronic chip, as: e-mail address, phone number or the name and the details of the emergency contact.

Field	Type	Validation
Birthday	DATE	Accessible to minors after special permission, the date now should only be less than the current date
Code1 (front)	String	Size 50 Starts by CAN, then there is a space followed by digits: <code>^CAN\s\d{6}</code>
Code2 (back)	String	Size 50
MRZ	String	Size 200
Particular field	Unknown, we can make it a String	Unknown, the String size could be 250

3. **Concrete example:**

Field	Value
User Picture	-
Id	C122666
First name	Sarah
Last name	Jbar

Birthday	17-12-1965
Birth place	Tanger
Date of expiration	11-02-2031
Signature: picture	-
Code1 (front)	CAN 360000
Code2 (back)	OPII2III
MRZ	-

II. Libraries:

The project is about detecting if a user is a robot or not by scanning his national ID card, this means that the project is about computer vision, the libraries used will be:

- **Tensorflow:** Because our project is about computer vision, we need this open source library for numerical computation and machine learning. It has enough resources to support end-to-end ML-powered applications. It is python-friendly, but can provide C++ APIs, and some non-guaranteed APIs for other languages.
- **OpenCV:** an open source computer vision library, we will need it to detect ID card pictures in real time, since it is one of its strongest functionality.
- **Numpy:** It is a library for python that adds support for arrays and matrices, we will need it to arrange data as Numpy arrays before being processed.
- **Pandas:** a python library to analyze data, we will need it to read CSV files; example: labels CSV file.
- **Matplotlib:** a python library to visualize our data.