Mafqood

Question 1: What is the main problem that you are solving?

The main problem we are solving is the trying to identify the lost people in a computerized way that solves the human errors in a way makes it better and easy to them to get back to their relatives.

Question 2: What is the importance of this problem?

We think it is a heavy problem to the people who lose their children or mentally diseased people as they will find it very hard to find them.

The time is a very important factor in some cases like this so we need to identify and find the people as fast as possible.

The presence on an easy fast tool makes the problem much easier.

Question 3: What are the current solutions?

The current solutions are the old fashioned ways like reporting the problem to the police, but it is a very slow way and most of people don't know the right steps to report a missing person.

Some people use social networks such as facebook as a solution but it's not the best practice because it's no one's job is opening facebook groups and pages collecting and pairing the photos of lost people and dig deep into the old data looking for the people and analyzing the these data.

Question 4: How will your solution solve the problem? What is new?

Our solution is to make use of machine learning to solve this problem, we will make a software that uses a group of machine learning models to help identify the lost people (face print, clothes and age) throw a platform that receives reports and collects the images and information about these people.

The solution is a great help in the case of the main crowded events such football world CUP and increase the safety of families and somehow increases tourism.

Question 5: What is the expected impact of your solution from various perspectives (social, commercial, environmental, etc)?

The impact of the solution will be very positive, it will solve a big problem helping the society to lower the number of lost people and calm down the families when they find their lost ones.
The solution will not will have much impact according to commercial use as it only adds a value to the society by solving one of its problems (the core of the system may be useful in commercial use in the future).

Question 6: Give a high level functional description of your solution. How will it be used?

The solution relies on the reporting lost people by their relatives and reporting finding lost people using their pictures and clothes description.

The application works a follow

1 - A person (A) loses a child or a mentally diseased person
2 – The person (A) reports the missing person and supports the report with any available pictures and information of the person to the platform (Web or mobile connects to web service).
3 – The app gets the person face print and stores it in the database as a missing person.
4 – Someone else (B) finds a person in the street.
5 – The person (B) takes a picture of the lost person then attach it to the platform (Web or mobile connects to web service).
6 – The application gets the face print of the reported person and scans for a match on the database and if it finds a match it notifies the 2 persons (A) and (B) with the contact methods of each other.
7 – The app reports these data to the police and uses the data reports to make statistical analysis and dig for new information.

Question 7: Give a high level technical description of your solution: architecture, technology, integration, innovative components, etc.

-The solution relies mainly on a web application programmed using modern framework (Laravel or NodeJS)

-There must be client apps as mobile apps (Android) and dynamic web sites that uses the web application to report and receive notifications.

-The main web app service uses 3 trained Deep learning models to gather information from the uploaded photos and store it to the app database.

-The innovative part is the usage of these 3 Deep learning models together to get information from reported photos and use them to identify the person and generate reports according to the collected data that make use of statistical analysis to help prevent similar problems in the future.

Question 8: Give a high level description of your solution development environment, platform, tools, etc.

-The solution relies mainly on a web application programmed using modern framework (Laravel or NodeJS)

-The solution should run as a hosted web service 24/7 on any operating system as any web application.
-The web app consists of an application that uses 3 main Machine learning models (Face print, clothes and age) to analyze the uploaded and reported pictures throw the client apps.

-Most of these models are state of art models and some are being trained by us on high computing cloud service (Amazon or Google Colab).

-Client apps (mobile apps or dynamic web apps) should use the service to report the cases and receive the notifications about the reports.

-The web app responds to the client application if it finds a match for the reported case.

-The web app has a back-end control panel that generates reports and make analysis on the data to dig for new information.

Question 9: How will you manage your product development cycle, your quality assurance process, your solution deployment logistics, etc?

The solution will go throw the software development life cycle (Spiral), it will run throw system design then design testing then coding then testing this coding then testing the full system as a whole unit, every step is followed with quality assurance test by the other members to ensure quality.

Every part of the system is made throw number of iterations of the spiral model

The design phase requires members that worked on similar architectures to make the blue prints of the solution then these blue prints are tested.

Then we go throw the process of coding the system and it will be done by members who specialize in making web services that does similar jobs, the 3 machine learning models will be put together to work and process of analyzing the images feed to the web service.

After that the quality of the system will be tested as a real application with simulated different situations that shows any lack of user experience in the solution then the issues and quality will be solved and improved using spiral software development life cycle.

The system will run on our web hosting service so it will only cost the rent for the service and any mobile phone of any member of the team.

Question 10: Give the most relevant plans that you have developed for your project
(for example, time schedule, resource plan, training plan, risk management, contingency plan, etc.)

10/2018 – the team started exploring the idea and see if there is any similar ideas that offers the same solution but they didn't find an identical idea.

11/2018 – the team started advanced training on computer vision beside studying the state of art models that maybe useful in the solution.

12/2018 – we determined the models to use in the solution and started rebuilding the needed dataset to train the machine learning models that needs fine-tuning and the working on developing the web service body.

1/2019 – the main engine of the solution is ready to be used and tested for quality improvements and the web service is ready to use the engine.

2/2019 – The UI/UX are made and tested against real users and simulated situations to get high user usability

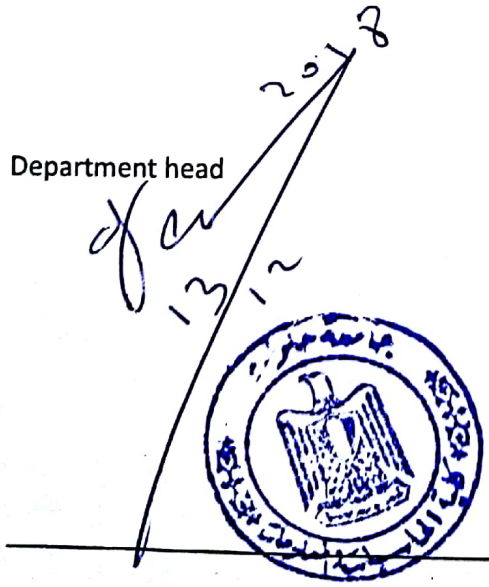
3/2019 - After collecting false data from the simulated tests the team will work on developing report generators and statistical analysis that get new information from current data.

4/2019 – The team will work on submitting the layout to DELL EMC

5/2019 – The project beta version is released and tested and starts collecting data.

7/2019 – Final project submission.

Department head



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