## Project Proposal

## Title of Project:

Android System for Person Recognition and Search & Rescue using Digital Image Processing

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## Abstract:

In this project, we aim to develop an android application that analyzes and recognizes a face in real time. This shall be implemented through code in MATLAB and will have a minimal user interface to run the app. The program will identify a specific person in real time and inform the user through some form of an alert. The main usage of this application is to help with search and rescue operations of lost individuals.

## Motivation:

Our main motivation for developing this application is because of the real world example of children getting lost in marketplaces. It’s unfortunately a common occurrence in many countries and is a terrifying experience for both the parent and the child. Our application would help as it would allow parents to locate their child by quickly scanning the crowded area nearby to help in their search for their children.

## Similar Projects:

Here are 3 related projects who do similar work as ours, along with some differences:

Project Title: Real-time Face Recognition System for Missing Children Detection (<https://www.globalcitizen.org/fr/content/missing-children-found-india/>)

Differences: It uses the YOLOv3 Tiny deep learning model for recognition, while we are using MATLAB. MATLAB as a tool will allow us more control over the facial recognition process.

Project Title: Person Search and Rescue Using UAVs and Image Recognition (<https://dl.acm.org/doi/abs/10.1145/3449365.3449377>)

Differences: Our project focuses on a mobile application for on-ground search operations, while this one uses a drone and is strictly related to aerial searching techniques.

Project Title: Open-source Android Face Recognition App: 旷野科技 Face Recognition - Megvii Technology (旷视科技): <https://en.megvii.com/technologies/face_recognition>

Differences: The facial recognition options in this app are broader and more general while ours targets specific people whose data has been given to the app.

## Implementation:

The implementation of this app will involve using MATLAB as a tool to recognize specific people in real time. For this, the workflow will be:

* Specifying the requirements:

Firstly, we will specify the data we require from the user, such as a video or images of the targeted person. We will also specify the requirements of the android system we plan to use this application on.

* Learning recognition techniques:

Secondly, we will learn different recognition techniques that can help us in developing an algorithm that will execute the functions we require.

* Developing an algorithm:

Thirdly, we will develop our own algorithm that must meet the requirements that have been previously set. These requirements will include recognition of a targeted person in real time at approximately 30fps, using the camera of the android system.

* Development of User Interface:

We will design a minimal User Interface that will help user with the working of the android application.

* Testing and Application:

The application will be subjected to testing on various data sets until its working is perfected.

## Flowchart:

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