CSL 607: Multimedia Systems

Blind Assistant

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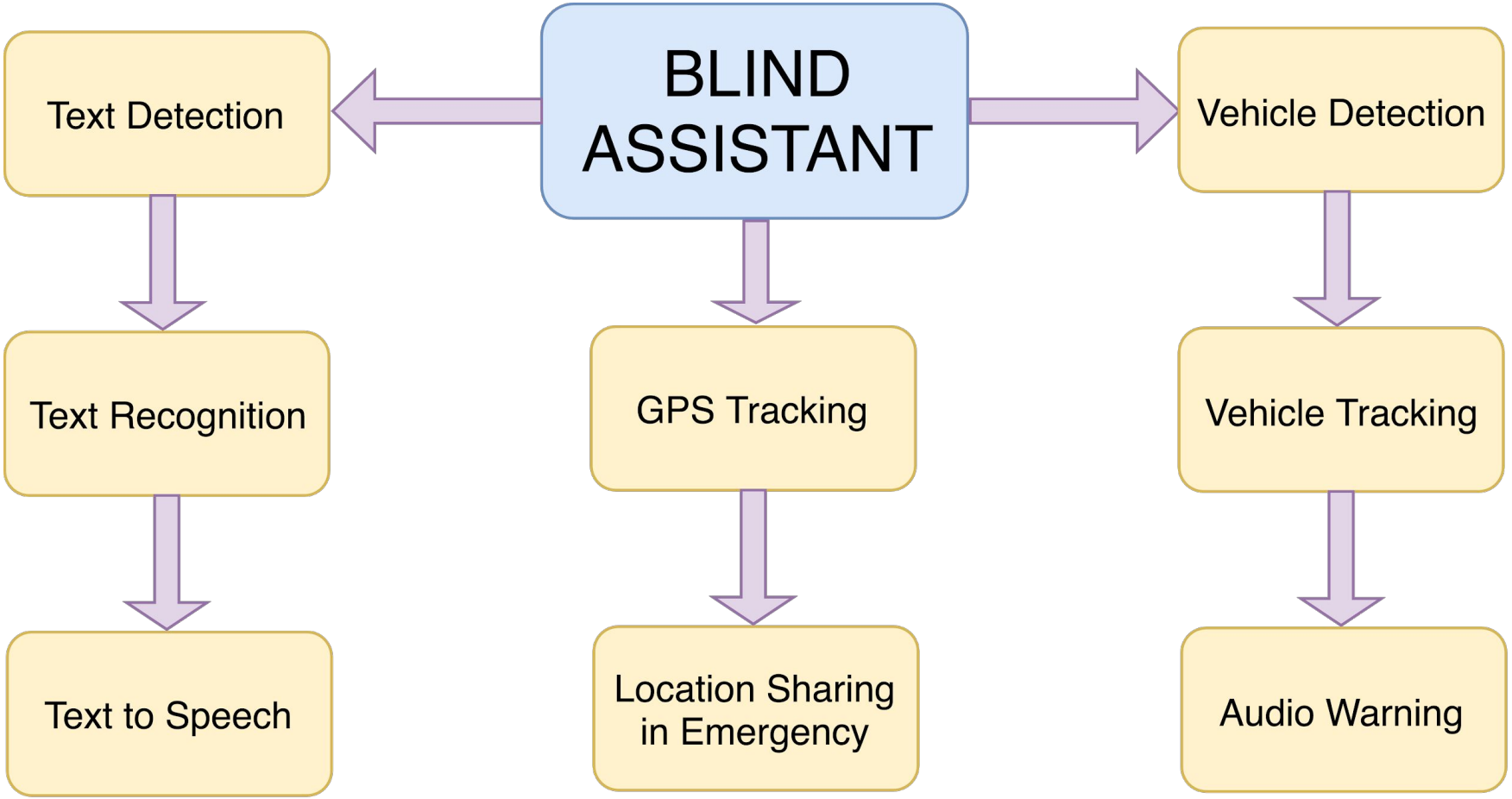
INTRODUCTION

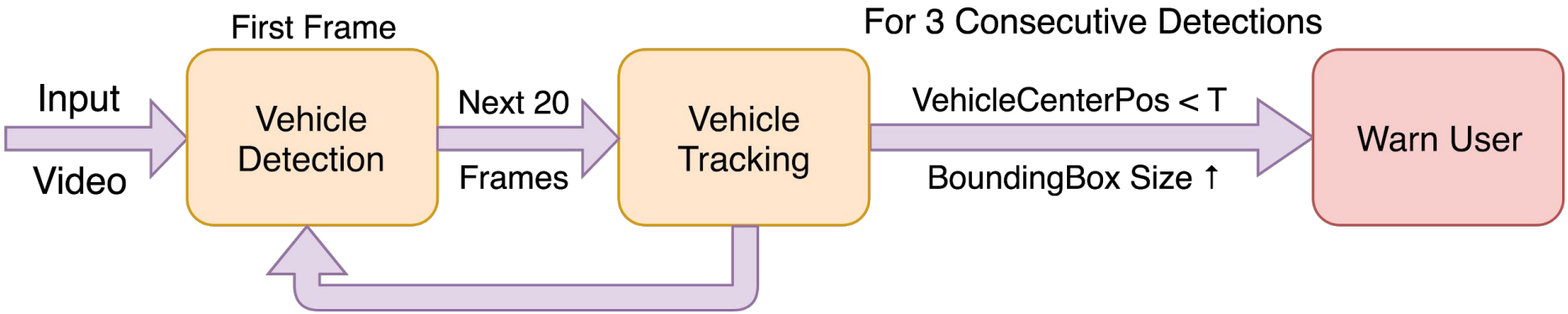
The aim of our project is to create an application in order to help blind people in their day to day lives. We help to make their lives easier by performing some of the task in which they may face difficulties in life.


BLIND ASSISTANT
Text Detection
Text Recognition
Text to Speech
GPS Tracking
Location Sharing in Emergency
Vehicle Detection
Vehicle Tracking
Audio Warning

VEHICLE DETECTION & TRACKING

Detect and track the vehicles in the view of the blind person and warns him beforehand if any vehicle is coming towards him.

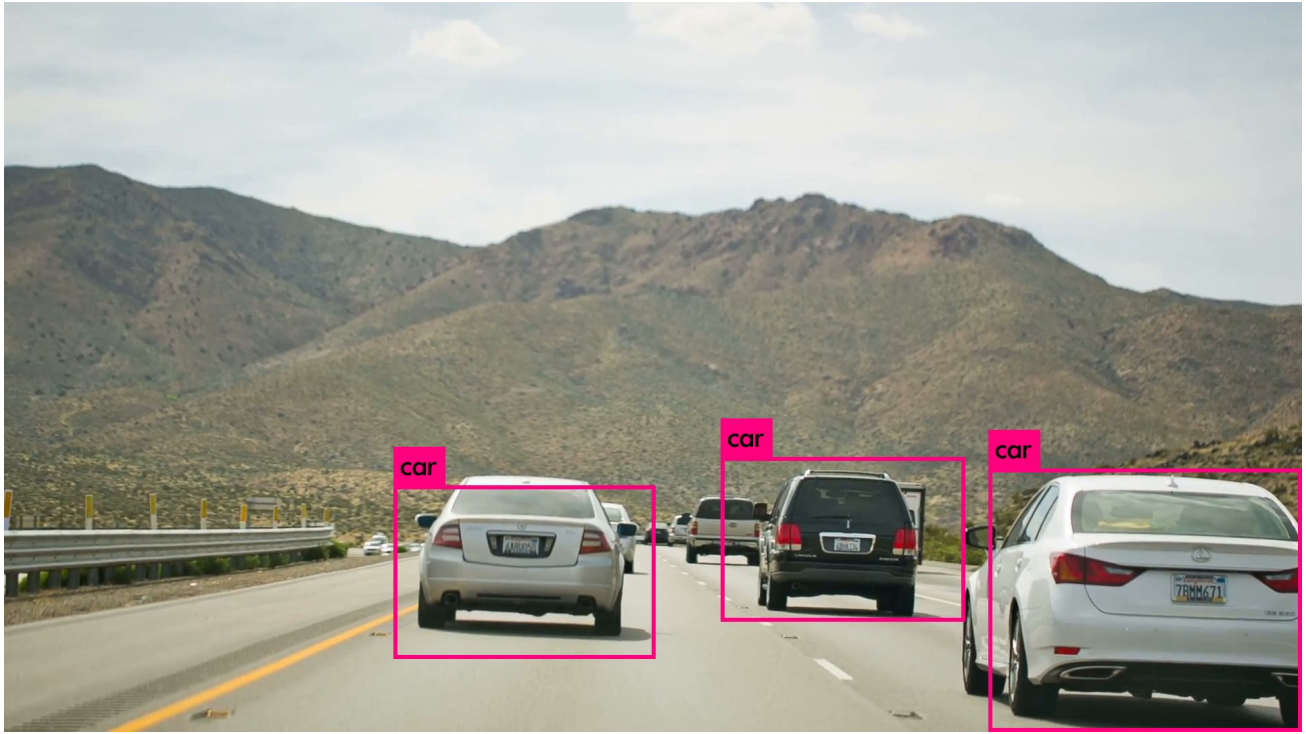
METHODOLOGY



Vehicle Detection

We detect the vehicles and localize them using bounding boxes, in a frame of the video feed given by the user. For this purpose, we use a pre-trained YOLO model.

Vehicle Detection Example



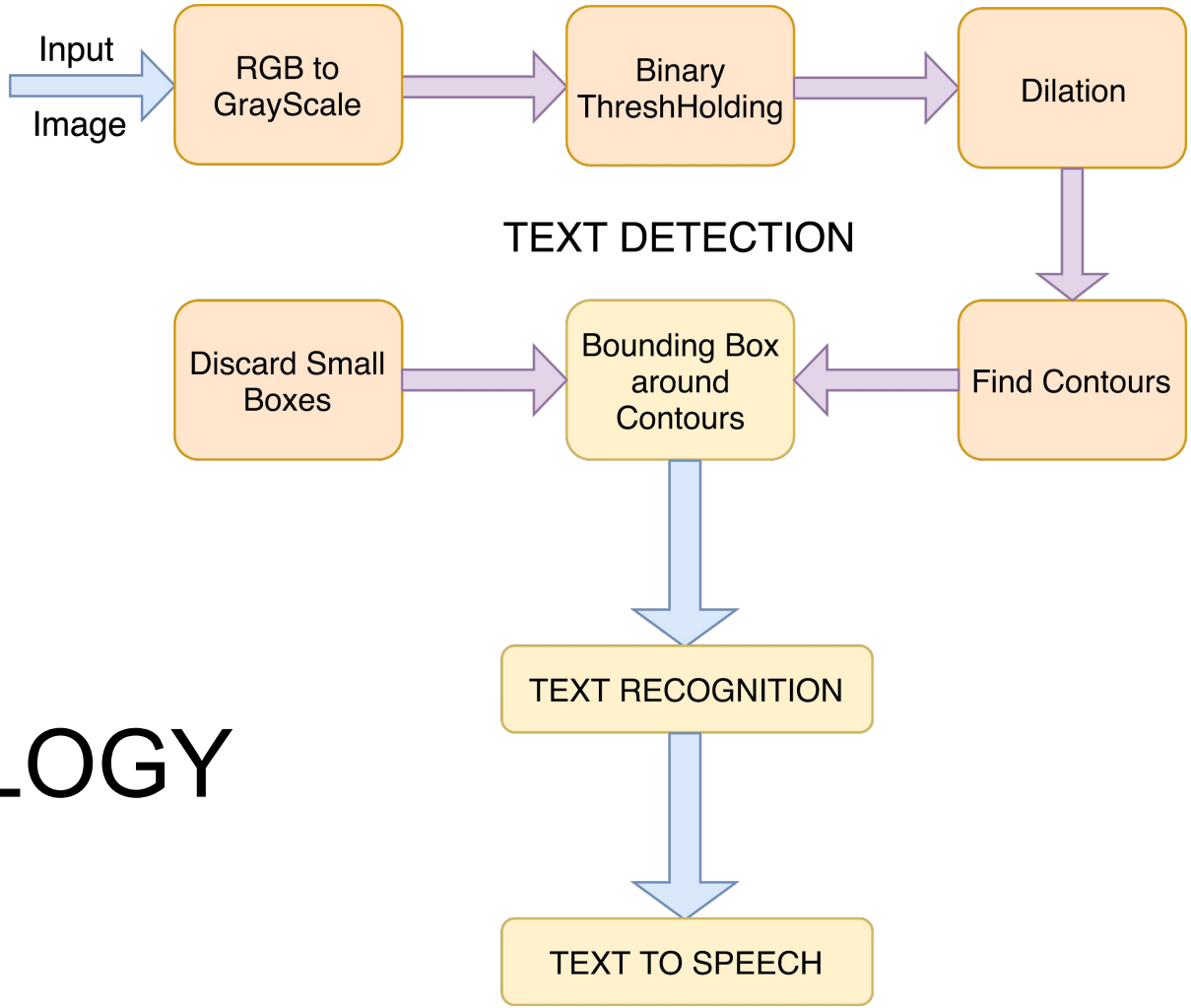
Vehicle Tracking

MEDIANFLOW Tracker is used for the purpose of vehicle tracking. This tracker works best when the motion is predictable and small.

TEXT DETECTION, RECOGNITION AND SPEECH

We detect any text present in a particular image, recognize it and then convert the text to speech to read it out to the blind person.

METHODOLOGY



Text Detection

Detect the text in any given image, and make bounding boxes around the detected text, to send it to the next part for recognition.

Text Detection Example

Text Recognition

We recognize the text from the detected text blocks in the previous part. For this section we use Python-tesseract an optical character recognition (OCR) tool for python.

Text To Speech

Google Text to Speech API commonly known as the gTTS API is used for converting the recognized text to speech.

GPS TRACKING & LOCATION SHARING

We use the Google Maps Android API in order to get the location data of the mobile. The person can simply click a button on the app and his location will be shared with the decided contacts via an email.

CONCLUSION

Our app can be a very good help for blind people and make their daily lives easier. We would like to add some more features in the future such as scene description, small distance navigation etc.

THANK YOU