Please make a copy of this document and include this in your GitHub repository for your submission, using the tag #AndroidDevChallenge

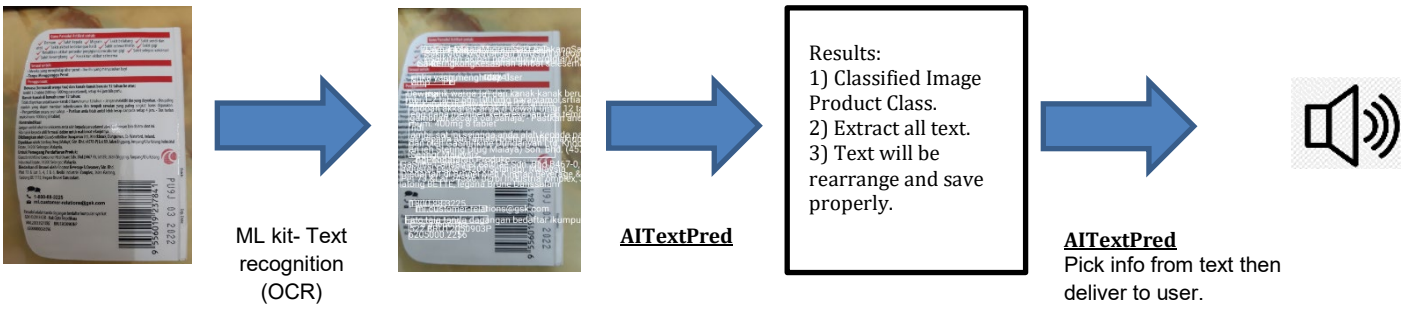
Tell us what your idea is.

Describe in 250 words what the feature or service will do and how you'll use Machine Learning to push the bar:

AITextPred

My idea is develop AI App that able to scan all text list (example: Ingredients, product use precautions, expire date, etc….) on the product surface, then automatically summary relate info and transfer to user via Audio.
This App not merely able to clarify the product/object, but also able automatically extract and classify information from text. This is an obvious advantage for users who are blind or vision impaired to better verify on each product/item.
This App to design and implement by utilize Google Machine learning services /API together with Google Glass to Synch with Android phone where,

- Android phones (Installed with AITextPred for Data processing).
- Google Glass (Camera, Mic and speaker).
- Google Vision API with OCR (Optical Character Recognition).
- Tensorflow (images classification).
- Google Cloud Speech API (Speech recognition)



Tell us how you plan on bringing it to life.

Describe where your project is, how you could use Google's help in the endeavor, and how you plan on using On-Device ML technology to bring the concept to life. The best submissions have a great idea combined with a concrete path of where you plan on going, which should include:

- *(1) any potential sample code you've already written,*
- *(2) a list of the ways you could use Google's help,*
- *(3) as well as the timeline on how you plan on bringing it to life by May 1, 2020.*

Example use cases:

AITextPred software algorithm design to clarify the product by using both ML: Object Class and Text to produce more accurate result. Below is example AITextPred use cases:

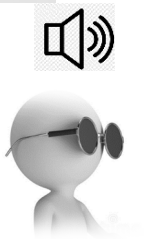
		TensorFlow Image classification(re-train model)	ML Kit Text recognition (OCR)	
	Process	Product Class	Automatic (Base Product class & user data predict which info needed by user)	Manual (Optional, if extra info require by user)
	Results (Audio out)	Medicine	Heng En xxx Antibiotic 5ml/days	Clinic location: Klinick Tee & Ho,xxx Clinic contact: 04-4217xxx Doctor name: Dr .Tee Date:29/11/2019 Attentive: Antibiotic, to finish
		Fruit: Durian	From Malaysia Price: RM33.9	Packed Date: 1March2019 Expire date: 8 March2019 Packed by: APITA Weight: 300grm

Concept Description:

Google Glass Camera Scan Image in real time and synch with Android phone

TensorFlow Image classification(re-train model) to identify the Product class.

Audio Output product class:
Medicine: Panadol



User scan the product front and rear surface via Google Glass Camera

ML OCR recognize all text on product surface. Designed Algorithm will rearrange & store all text info properly.

Google Text to speak (tts)

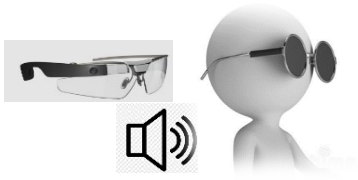
Cloud Speech recognition

Case 1: Automatically text extract
User: Blind People A
Location: Home

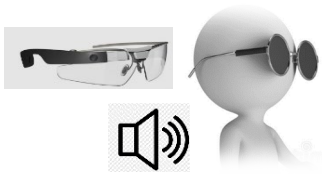
Case 2: Automatically text extract
User: Blind People A
Location: Outside (Shopping centre)

Case 3: Extra info inquired.
User: Blind People A
Location: any

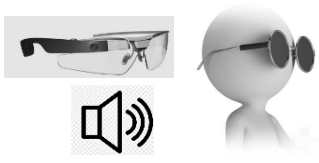
Voice input: Please call to customer service



Text->Audio out:
Product Name: Panadol
Product usage: For Fever, 2 tablet per day.



Text->Audio out:
Product Name: Panadol
Price: RM10.00
Amount: 20 Tablet per box



Text->Audio out:
Customer service Contact number: 1-800-883225.
Action:
Phone dial call to 1-800-883225

(1) any potential sample code you've already written,
For current stage, development environment was setup and I have reviewed to understand related ML sample code and API usage.

(2) a list of the ways you could use Google's help,
- Mentorship support to fully utilize the Google Glass with this App.
- Advice on optimize data synch method between Google glass and Android devices.

(3) as well as the timeline on how you plan on bringing it to life by May 1, 2020.

Phase 1: Software Develop prototype on Android Phone (1Dec2019 - 30Feb2020).
- Setup Development Environment and tool preparation. (Done)
- App UI and UX design.
- Implement Tensor flow lite for Image Classification, Google tts (text to voice), Cloud Speech recognition and ML kit- Text recognition (OCR).
- Implement ML Algorithm to extract and classify information from text.

Phase 2: Beta test on phone. (1March - 15 March 2020)
- Retrain inception model using the "retrain.py" script. Retrain will focus on Medicine product Model.
- Generate .pb file to port on AITextPred App.
- Initial Prototype Test and debug. Test base on Android phone Camera, Mic and speaker.

Phase 3: App implement and Synch with Google Glass (16 March - 15April 2020)
- Integrate and synch AITextPred App with Google Grass Hardware: Camera, Mic, and Audio out speaker.
- Evaluate the Data performance synch (via Cloud and Bluetooth) between Android phone and Google Glass.

Phase 4: Test and Improvement (16April – 30April 2020)
- Beta releases.
- Test, debug and improvement.
- Optimize user experience.
- Publish to Playstore. (1 May 2020)

Phase 5: Made it as Open Source (Future)
- Complete Source Code will be open to share via GitHub.
- Provide tutorial on how to utilize this software concept for others potential product.

Tell us about you.

A great idea is just one part of the equation; we also want to learn a bit more about you. Share with us some of your other projects so we can get an idea of how we can assist you with your project.

I am Heng ChangSong, bachelor of Computer engineering graduate from University Malaysia Sabah. I have an experience of working as an Embedded Software Engineer for 12 years in automotive field. As an Embedded Software Engineer (Linkedin) at DDMan, we design and provide software solution for China Automotive OEM such as Geely, Chery , Great Wall, Robert Bosch Car Multimedia (Wuhu), etc. I have worked and managed lot of automotive base project such as Vehicle Instrument Cluster, Full programmable Cluster (Linux Base OS) and In-Vehicle infotainment (running Android 9.0 OS). Apart from these, Develop Android App is one of my hobby. At year 2014, my first Android app - USB OTG Checker was published to Google playstore. My most recent App (2019) was published to google playstore is a Caller and Dialer App - MyAnimationDialer.

Next steps.

- Be sure to include this cover letter in your GitHub repository
- Your GitHub repository should be tagged #AndroidDevChallenge
- Don't forget to include other items in your GitHub repository to help us evaluate your submission; you can include prior projects you've worked on, sample code you've already built for this project, or anything else you think could be helpful in evaluating your concept and your ability to build it
- **The final step is to fill out this form to officially submit your proposal.**