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| **Project Title** | EX Libris A Latin expression referring to stamps on books by libraries or persons to authenticate and prove ownership. | | |
| **Track** | **Team 5 (AiZ)** | | |
| **Supervisor** | Prof./Dr. Ayman Ezzat, Prof./Dr. Ahmed Bahaa & Prof./Dr. Islam ElSharaawy | **Mentor Name** | Prof./Dr. Islam ElShaarawy |
| **Team Name** | Team 5 ( AiZ) | | |
| **Team Members** | Abdelrahman Adel ID: 121237 | Ahmed Issa ID: 191947 |  |
| Elham Gomaa ID:183091 | Huda Fouad ID: 184025 | Text. |
| **Problem Summary** | As remote education is given province all over the world in 2020, the need for an affordable and easy-to-use mobile applications keeps increasing. Additionally, it reflects the result to the user before any interface. An ideal software will further facilitate the mobile application development through real-time monitoring, face and text recognition. Although the software relies on computer vision, and image segmentation (i.e. face detection, text recognition, image labeling , and barcode scanning), it is affordable and user-friendly. | | |
| **Methodology** | Mobile Application (Java , Android studio , ML Kit )   * Face Detection:   Edge detection contributes to feature extraction; the central point of the face is marked up, and about 10-20 centimeters are added to estimate the area, in-which the face appears. Hence, faces are marked up by squares on account of face dimensions. This feature also detects the existence of more than one person indicated by multiple face detection.   * Text Recognition:   With ML Kit's text recognition APIs can recognize text in any Latin-based character set. They can also be used to automate data-entry tasks such as processing credit cards, receipts, and business cards. | | |
|  | * Facial feature extraction:   Edge detection plays a role in recognizing the dimensions of facial features, which means that higher percentage of specific dimensions indicates the existence of particular feature. On that account, edges of facial features are marked up by tiny circles   * Facial Expression :   By integrating edge detection and facial feature extraction, EX Libirs can recognize facial expressions on account of facial lines, variations in dimensions of features’ edges or particular movements for over 50 expressions. Accordingly.   * Barcode Scanning : * With ML Kit's barcode scanning API, you can read data encoded using most standard barcode formats. Barcode scanning happens on the device, and doesn't require a network connection. * Image labeling:   -With ML Kit's image labeling APIs you can detect and extract information about entities in an image across a broad group of categories. The default image labeling model can identify general objects, places, activities, animal species, products, and more.  Barcodes are a convenient way to pass information from the real world to your app. In particular, when using 2D formats such as QR code, you can encode structured data such as contact information or WiFi network credentials. Because ML Kit can automatically recognize and parse this data, your app can respond intelligently when a user scans a barcode. | | |
| **Achievements and Skills Gained** | 1. Determining the appropriate user interface by choosing tkinter in order to provide a user-friendly experience and on demand features that are easily accessible. 2. Providing software that solves significant issues with minimum costs; attempting to create the ideal software for educational institutions. It is affordable, user-friendly, inclusive. | | |

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| **Project Title** | EX Libris |
| **Main Results** | Face Detection: |
|  | Image labeling: |
|  | Image labeling: |
|  | Text recognition : |
|  | Barcode scanning: |
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| **Discussion and Conclusion** | EX Libiris can be considered as the answer to user goal. By using android studio makes availability of using many options . At the end , we used the following properties :   * Face detection * Text recognition * Image labeling * Barcode scanning * Facial features |
| **References** | **Sources:**  [**https://developers.google.com/ml-kit/vision/barcode-scanning**](https://developers.google.com/ml-kit/vision/barcode-scanning)  **Readings:**  <https://github.com/googlesamples/mlkit/tree/master/android/vision-quickstart>  <https://github.com/google-ar/arcore-android-sdk> |
| **Future Work and Suggestions** | * All features of EX Libirs can be used to track the productivity of user requirements . * Using a larger data set and machine learning are recommended for enhanced and distinctive facial expression detection. * Adding identity verification feature to confirm user identity by cross-referencing detected image with database of ID pictures. |
| **Group Photo** | None. (Remote teamwork) |