**Functional Analysis:**

**Viva/Interview module:**

* This module will fetch questions from the database to create a set of questions to be asked based on examiner preferences of difficulty level in the viva/interview.
* It will ask the candidate the set of questions created above using text-to-speech software module.
* It will record the response of the candidate to the asked question using speech-to-text software module.
* The recorded text above will then be summarized using the text-summarization software module.
* Also, the desired keywords will be searched in the candidate’s response.
* Based on certain parameters of marking such as number of keywords required and relevance to the actual answer, marks will be awarded on a scale of 5.
* Finally, when all the questions have been asked a summary of the viva/interview is created with the final score.
* Also, in case of multiple candidates a spreadsheet can also be created with the details of all the candidates.

**Quiz module:**

* This module will fetch questions from the database to create a set of questions to be asked based on examiner preferences of difficulty level in the viva/interview.
* A quiz will be generated according to the difficulty required.
* After the candidates have taken the quiz, the quiz sheet is scanned via the camera attached to the device.
* The module scans the roll number/candidate id from the sheet using ODR software module.
* Now it detects the blue colored ticks on the multiple-choice questions and evaluates it.
* Finally, it enters the score of the candidate in the spreadsheet.

**Setup module:**

* This module is used by the examiner to setup the device for various requirements of the viva/interview/quiz.
* The examiner can enter the number of questions to be asked.
* The examiner can enter the difficulty level of the viva/interview/quiz required.

**Non-Functional Analysis:**

**Performance requirement:**

* This is a hardware-based project, so the actual performance of the device is dependent on the hardware we choose to build it.
* Moreover, the project has various resource hungry software modules hence hardware is to be chosen careful.

**Product Cost:**

Since it is a hardware-based project various device must be bought to create it.

The estimated budget related to these devices are as follows:

1. Raspberry Pi 3 - ₹3150
2. Mic - ₹500
3. Camera - ₹1000
4. Speakers - ₹350

**Total** - **₹5000**

**Hardware used:**

1. Raspberry Pi
2. Mic
3. Camera
4. Speakers

**Software used:**

1. Python Language
2. Python libraries
   1. Tkinter
   2. Keras
   3. Pytessaract
   4. Text-to-speech library
   5. Speech-to-text library
3. OS for Raspberry Pi 3

**Security:**

Since the device is always in the control of examiner, the students can never temper with it.

Moreover, the device is not connected to the network it is not hackable.