



Artificial Intelligence Assistant

Aditya Gokhale, Kevin Mathew

Master of Computer Application,
ASM Institute of Management & Computer Studies
University Of Mumbai, India
Mumbai, India
adityagokhale1@asmedu.org kevinmathew1@asmedu.org

ABSTRACT:

Voice control is an essential developing function that change the way human beings can lives. The voice assistant is often being used in smartphones and laptops. AI-based Voice assistants are the operating systems that can recognize human voice and reply by using built-in voices.

This voice assistant will acquire the audio from the microphone and then convert that into text, later it is dispatched via GTTS (Google textual content to speech). GTTS engine will convert textual content into audio file in English language, then that audio is performed by using the play sound package of python programming Language. The predominant goal of the device is to simplify the procedure of the use of a computer, through decreasing the want for the usage of the mouse or typing. To provide a platform to interact with devices through voice commands. The proposed system is a way to make working with computer less difficult and convenient. Currently all the computer work is accomplished by both typing or using mouse. This system gives an interface to the user for interacting with computer machine through voice commands.

In our project we have applied many things compared to different assistants. Now a days it is very beneficial in human existence due to the fact it is a hands-free application. It is very simple and easy to use application. It is used in a commercial enterprise area for instance in a laboratory. For example, a person who wears gloves and body suits for their safety purpose so it is harder for them to type, through voice assistant they can get any data so that their work will become easy.

Keywords: Voice control, AI-based Voice Assistant, GTTS Engine, Play sound, Python.

Introduction:

In the past few years, the way people interact with virtual assistants has changed. In these instances, we are now using them for various tasks such as switching on and off lights, playing music, and controlling Spotify and other streaming apps. This new method of interacting with the devices makes it easier for users to communicate with the system.

The concept of virtual assistants in earlier days is to describe the professionals who provide ancillary services on the websites. The job of a voice is described in three stages: Text to speech; Text to Intention; Intention to action; Voice assistant will be thoroughly developed to improve the modern range. Voice assistants are no longer befuddled with the digital assistants, which are people, who work casually and can consequently manage all types of tasks.

Voice Assistants anticipate our every need and it takes action, Thanks to AI based Voice Assistant. This Voice Assistants can be useful in numerous fields similar as IT Helpdesk, Home automation, HR affiliated tasks, voice-based search etc., and the voice-based search is going to be the future for coming generation people where all most dependent on voice assistant for every requirement. In this proposal we've built the AI- based voice assistant which can do all of these tasks without inconvenience.

Methodology:

Voice assistants which are written in programming languages, that listens the verbal commands and reply in accordance to the user's request. In this project we have used Python Programming language to develop the AI-based Voice assistant. A user can say, "Play me a song" or "Open facebook.com", the voice assistant will reply with the results via playing that particular music or through opening Facebook website. The Voice assistant waits for a pause to be aware of those users have completed their request, then the voice assistant sends users request to its database to search for the request.

- A. The request made with the aid of the person receives break up into separate commands, so that our voice assistant can be in a position to understand.
- B. Once inside the command list, our request is searched and compare with the different requests.
- C. The command's listing then sends these commands again to the Voice assistant.

D. Once the voice assistant receives these commands, then it is aware of next steps.

E. The voice assistant would even ask a query if the request is not clear to process it, in different words to make sure it knows what we would like to receive. If it thinks, it knows sufficient to method it, the voice assistant will operate the assignment which the user has requested for.

A. Working Of ASR:



As shown in Fig, Automatic Speech Recognition which is termed as ASR is the main principle behind the working of AI-based Voice Assistant. ASR systems, initially it records the speech, then the wave file are created by the device which consists of the words it listens, later the wave file is cleaned so that the interference would get removed, and the volume will get normalized, then it will get broken down into elements and then it will get analysed in sequences, then the ASR software examines these sequences, and it implements statistical probability to find the entire words, and then it will get processed into textual content. The preferred method to recognise the elements is by using the

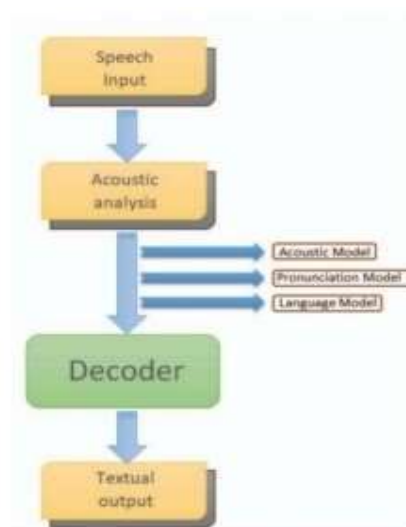
Element Recognition because it provides better results than the method of worddecoding. It does not matter what kind of speech recognition Software we mayuse, because all the work happens in ASR. In a nutshell, initially the first method starts with the Device gathering audio with the source, where source is the Microphone, then the Recorded speech waveforms will be Sent to acoustic analysis, which is in a position to be performed on three Different levels.

B. Acoustic Analysis

1. **Acoustic Modelling:** In this process, it represents That the element where pronounced or not and what are the words which can complete these rudiments.

2. **Pronunciation Modelling:** That analyses the way, where how these elements are pronounced, it'll Check whether there's any accent or other Tricks.

3. **Language Modelling:** This is frequently aimed toward finding contextual chances counting on what element were captured. All the data which were recorded get processed by Artificial Intelligence without any human interaction, also the speech waveforms data is transmitted to the decoder, where it eventually transforms into text format for further use like command.



HOW OUR VOICE ASSISTANT IS USEFUL:

In this section, we will explain a set of situational events that can tell how our voice assistants is useful. For e.g., if we Want to go to a particular location instead of opening google map and typing the destination takes a lot of time instead of that with our VA just by command to find the particular location it opens the map and highlights the particular T song is searched in the YouTube database and the Video ID is noted, with this the specific video is downloaded. If we want to get any information, we've to open Google and search for it. But in VA by just giving, it in the Collects the right information available on Wikipedia and Gives us and if we want to know about what's happening in This, we can gain knowledge. Concerning the aspect of extracts the current locations of the girl and sends it to their Parents or other relatives and the near police station.

Results:

The required packages of Python programming language have been installed and the code was implemented using PyCharm Integrated development environment (IDE) and the python code we have developed runs in both Python 2.7 and Python 3.x.and below are the few outputs which we have received in our AI-based voice assistant.

Greeting:

```

11 listener = sr.Recognizer()
12 engine = pyttsx3.speak()
13 engine.say("Welcome to my voice assistant")
14 engine.runAndWait()
15 engine.say("I am your AI assistant")
16 engine.runAndWait()
17 engine.say("How can I help you?")
18 engine.runAndWait()
19
20 def listen():
21     pass
22
23 if __name__ == '__main__':
24     listen()

```

Current Time:

```

25 song = comments.repository.get(' /
26 talk('playing ' + song)
27 pywhatkit.playonyt(song)
28
29 elif 'time' in command:
30     time = datetime.datetime.now().strftime('%I:%M %p')
31     talk('Current time is ' + time)
32
33 elif 'who is the' in command:
34     person = command.replace('who is the', '')
35     info = wikipedia.summary(person, 2)
36     print(info)
37     talk(info)

```

Who is Virat Kohli:

```

38
39 if 'play' in command:
40     song = command.replace('play', '')
41     talk('playing ' + song)
42     pywhatkit.playonyt(song)
43
44 elif 'time' in command:
45     time = datetime.datetime.now().strftime('%I:%M %p')
46     talk('Current time is ' + time)
47
48 elif 'who is the' in command:
49     person = command.replace('who is the', '')
50     info = wikipedia.summary(person, 2)
51     print(info)
52     talk(info)

```

Run

Who is the virat kohli

```

53
54 if 'play' in command:
55     song = command.replace('play', '')
56     talk('playing ' + song)
57     pywhatkit.playonyt(song)
58
59 elif 'time' in command:
60     time = datetime.datetime.now().strftime('%I:%M %p')
61     talk('Current time is ' + time)
62
63 elif 'who is the' in command:
64     person = command.replace('who is the', '')
65     info = wikipedia.summary(person, 2)
66     print(info)
67     talk(info)

```

Run

Who is the virat kohli

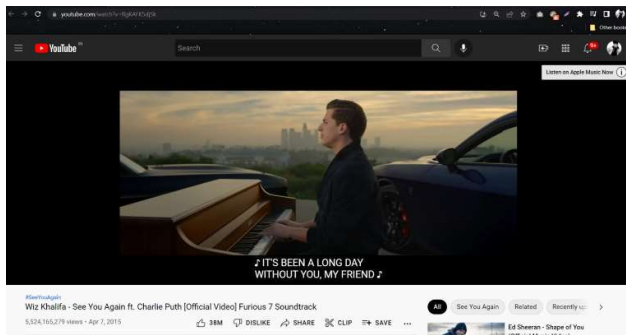
Virat Kohli (Hindustani): [1:00: 36:31] (Listen), born 5 November 1988) is an Indian international cricketer and former captain of the India national cricket team.

Play song using voice assistant:

```

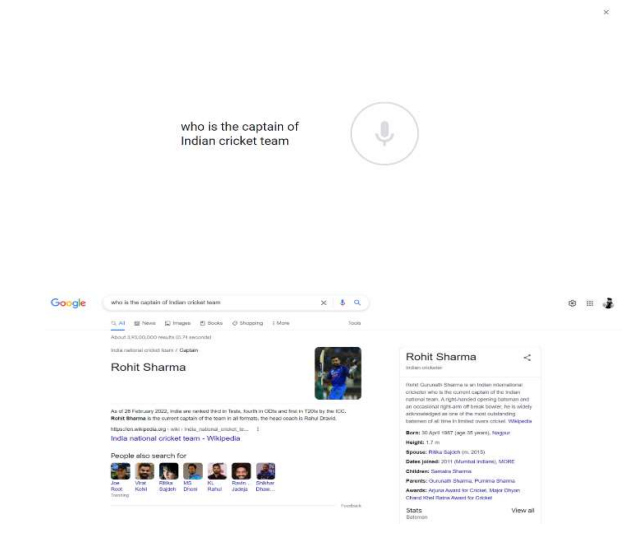
1 listener = sr.Recognizer()
2 engine = pyttsx3.Linux()
3 voices = engine.getProperty('voices')
4 engine.setProperty('voice', voices[1].id)
5 listener.wait_for_audio_chunk()
6 engine.say('I am your driver')
7 engine.say('what can I do for you?')
8 engine.runAndWait()
9
10 def talk(text):
11     """
12 """
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

```



Google Search Output

As shown in below Fig. When we ask the voice to search "WHO IS THE CAPTAIN OF INDIAN CRICKET TEAM", it receives the request and performs the actions by searching goggle. performs the action by searching google.



Conclusion:

Voice assistants are useful in many fields such as education, daily life application, home appliances etc. and voice assistant is also useful for the illiterate people they can get any information just by saying to the assistant, luxury is available for people, thanks to AI based voice assistants. Voice assistant is developing more and more in daily life. Many companies of voice assistant trying to improve interaction and more features to the next level and many of the youth started using voice assistant in daily life and from many sources the result showing very good feedback. Compared to last 2 years voice assistants have been developed more and more. In future voice assistants can be used for two Developments: First quality of dialogue recognition will increase because broadband allows more complex data Processing in powerful data centres. Second, from the users Perspective, VAs

aid for interaction. In the companies, voice Assistants can be used to automate repetitive tasks, for Book meeting rooms etc.

References:

1. Saadman Shahid Chowdury, Atiar Talukdar, Ashik Mahmud, Tanzilur Rahman³Domain specific Intelligent personal assistant with Bilingual voice command processing 'IEEE 2018.
2. Polyakov EV, Mazhanov MS, AY Voskov, LS Kachalova MV, Polyakov SV ³Investigation and development of the intelligent voice Assistant for the IOT using machine learning 'Moscow workshop on Electronic technologies, 2018.
3. Khawir Mahmood, Tausfer Rana, Abdur Rehman Raza ³Singular Adaptive multi role intelligent personal assistant (SAM-IPA) for Human computer interaction ' International conference on open Source system and technologies, 2018.
4. VetonKepuska and Gamal Bohota³Next generation of virtual assistant (Microsoft Cortana, Apple Siri, Amazon Alexa and Google Home)'IEEE conference, 2018.