Institution Focal Person

Name	Email	Phone
[redacted]	[redacted]	[redacted]

Application Form Status

Your Application is Not Submitted yet.

Please Review, Confirm and Submit.

1 Institution Details

2 Project Members

3 Project Details

4 Confirm

Institution Details

Province	Sindh	**City**	Karachi
Institution	University of Karachi	**Campus**	Main
Department	Computer Science	**Degree Level**	BS
Degree Program	Software Engineering	**Telephone**	922199261300
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Supervisor Details

Name	Dr Humera Tariq	**Mobile**	03012387949
Office No	02199261300	**Email**	humera@uok.edu.pk
Designation	Assistant Professor	**Qualification**	Phd

Head of Department Details

Name	Dr. M. Sadiq Ali Khan	**Mobile No.**	
Email	msakhan@uok.edu.pk		

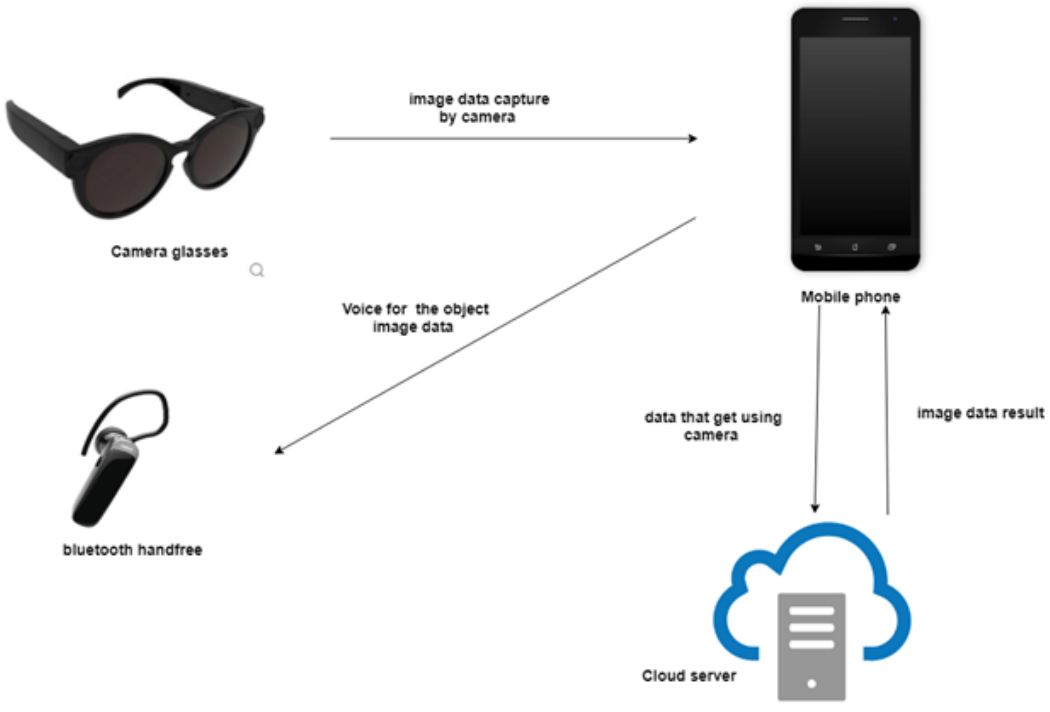
Project Group Details

Team Lead	Team Member's Name	Team Member's Mobile	Team Member's Email	Team Member's Institution Registration Number	Team Member's Year of Study	Team Member's Semester	Team Member's CNIC
YES	Waqar Amjad	03362811904	waqaramjad345@gmail.com	SCI/DCS/KU-47757/2015	4	7	4220129928895
NO	Hamza Nadeem	03232758780	nadeemhamza768@gmail.com	SCI/DCS/KU-46889/2015	4	7	4200011420177
NO	Maroof Ali	03491850236	maroof.cyber@yahoo.com	SCI/DCS/KU-46899/2015	4	7	4220112445057

Project Details

Project Title	Virtual Assistant for blind people		
Project Area of Specialization	Artificial Intelligence		
Project Start Date	2019-03-01	**Project End Date**	2020-03-01
Project Summary (less than 2500 characters)	Virtual Blind Assistance is being developed to guide blind persons via voice instructions in indoor and outdoor environment. The assistance will detect objects, recognize them and guide the blind person to plan his path. The objects to be detected and recognized include house furniture, humans and walls , vehicles , and other things The blind person wear glasses in which camera is attached also that person have hand free and a mobile phone so that when a person see anything from camera send the input to your mobile phone then mobile phone process it and give the audio to the hand free by this method blind person know the things that is in front of him		
Project Objectives (less than 2500 characters)	• To assist a blind person in his daily life without interaction of human being. • To include feature of object detection and object recognition. • After recognizing object, the system will play an audio to guide the blind person. • it includes all aspect of life , like moving ,news paper reading and other things reading , meeting people and their behavior , shopping , face detection , food checking , and all aspect of life		

Project Implementation Method (less than 2500 characters)	During the Implementation phase, the project plan is put into motion and the work of the project is performed. It is important to maintain control and communicate as needed during implementation. Progress is continuously monitored and appropriate adjustments are made and recorded as variances from the original plan. Hence as part of execution we broke our Virtual Assistance to modules for a broad view of the project and to strategize easily for further implementation and tracking through out. **Modules** **Developing your own Voice Assistant App** For now we will be using custom voice assistance provided to us by the gTTS, STT or TTS free libraries provided open source, for later on broad production and our own identity we might be developing our personal assistant voice api. **Voice/speech to text (STT)** This is the process of converting speech signal into digital data (e.g., text data). The voice may come as a file or a stream. You can use CMU Sphinx for its processing. **Text to speech (TTS)** This is the process of converting digital data (e.g., text data) into speech signal. The voice may come as a file or a stream. We might use gTTS for its processing. This process translates text / images in a human speech. It is very useful when, for instance, a user wants to hear the correct pronunciation of a foreign word. **Intelligent tagging and decision making** Intelligent tagging and decision making serve for interpreting the user's request. For example, in our current perspective the user may ask: 'I want to reach certain destination'. The technology will tag few appropriate path and suggest you a few according to your interests. We are overseeing multiple APIs for our certain needs**.** **Image recognition** Image recognition is the most important part of our virtual assistant project and the mighty module we are focusing on, we've considered and have been working on OpenCV because of the bigger community size that could help us in any point of error. We will be considering deep learning model be practiced and matching accuracy of our need in OpenCV through image recognition/ object detection/ classification, clustering/ or mapping.

Benefits of the Project (less than 2500 characters)	Virtual assistants can make it feel like secretaries have come back in style. Some examples includes for major perspective for Blinds are: • Guiding you through your path of the destination of your choice • Guiding you safely throughout • Reading your email and messages to you and even replying, • Finding out the weather forecast and reporting news you're interested in hearing. • help during meeting with new people and old people tell their age , behavior , looks etc • help during shopping , currency exchange • Read documents , newspaper and email • Tell about the environment during walk like moving people , vehicle , playing children etc • Providing reminders so you never miss a meeting,. • Adding items to your to-do list, • Making conference calls for you so you don't have to remember to bring the number, • Finding flights, lodging and restaurants for you locally or when you travel,
Technical Details of Final Deliverable (less than 2500 characters)	In the final deliverable we will integrated system in which Bluetooth glasses , Bluetooth hand free and mobile are attach to each other through hand free , and mobile is connected to a cloud server , so we will show following functionality during final testing of the project A blind person wear a glasses along with the hand free and a mobile phone in his pocket, so when person start walking the things that can see by camera will detect using Open CV and then that result will send to mobile and then mobile process it through Cloud server using deep learning algorithms and then cloud server tell the result of the things to the mobile and mobile send that result to the hand free using text to speech and blind understand the It tell about the following things: • Outdoor environment : like moving people , moving vehicle , playing children • Indoor environment : like taking with people and their behavior , face detection , • Path planning for blind person • Shopping item selection and tell blind about that things here is the diagram for our final Deliverable : 

Final Deliverable of the Project	HW/SW integrated system
Type of Industry	IT
Technologies	Artificial Intelligence(AI), Internet of Things (IoT), Cloud Infrastructure
Sustainable Development Goals	Good Health and Well-Being for People, Partnerships to achieve the Goal

Project Key Milestones

Elapsed time in (days or weeks or month or quarter) since start of the project	**Milestone**	**Deliverable**
Month 1	Object detection	Object identification using open CV and their name into text
Month 2	Text to speech	Object name convert into speech and connect object image to till speech
Month 3	Jetson nano implementation	Using Nvidia jetson nano , testing of image recognition to audio
Month 4	Video base detection	Working on a the video through a camera on Nvidia jetson nano
Month 5	Path planning algorithm implement	Testing a path planning algo for the blind person on jetson nano with specific objects like chair , human , table , etc.
Month 6	Addition of Bluetooth camera and headphone	Test using Bluetooth glasses and hand free and also mobile phone on that path planning algorithm
Month 7	Host code on server	Test code by hosting on the cloud server and test all the previous feature
Month 8	People and behavior detection	Addition of new feature , face detection , people behavior , and movement
Month 9	Outdoor environment object detection	Testing of outdoor environment detection like moving people , vehicle , playing people
Month 10	Text reading detection	Testing of reading newspaper ,email reading , currency reading , color detection
Month 11	Daily life feature	Testing of shopping , food item , daily home appliances , cloth wearing
Month 12	Testing	Test it on a Real blind person

Project Equipment Details

Item Name	Type	No. of Units	Per Unit Cost (in Rs)	Total (in Rs)
Jetson nano	Equipment	1	21000	21000
SD card 32 GB	Equipment	1	800	800
Charger	Equipment	1	250	250
Camera (8 MP) for jetson nano	Equipment	1	8000	8000
Audio speaker for jetson	Equipment	1	800	800
Bluetooth camera glasses	Equipment	1	21000	21000
Cloud servers	Equipment	1	5000	5000
Bluetooth Hand free	Equipment	1	600	600
Document printing	Miscellaneous	1	2000	2000
			Total in (Rs)	**59450**

☐ I affirm that all information submitted through this FYP application is correct and complete as to my best knowledge. I further agree that Ignite can approve, reject, defer or cancel this FYP application without mentioning any reason at any stage of NGIRI 2019. Information cannot be changed after submission.

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