



IUBAT-INTERNATIONAL UNIVERSITY OF BUSINESS AGRICULTURE AND TECHNOLOGY

Founded 1991 by Md.AlimullahMiyan

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Innovation and Entrepreneurship Center

Application Form for Financial Support to Research Projects

Project Title: Blind Assistance Glasses.

Principal researcher:

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External researcher and Institute (if any): N/A

Name: **Dr. Muhammad Hasibur Rashid Chayon**

Department or Institute: **Bachelor of Computer Science & Engineering (BCSE)**

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Duration of the Project: **1 year**

Total cost in Taka: 73,420 TK

Has this project been submitted elsewhere for financial assistance?

Yes No.

1. Outline of the Project

A. Title of the project: Blind Assistance Glasses.

B. Introduction:

In this project when find object then it can detect that object, besides it can make sound and vibration. This blind assistant glass will also provide us some key features for blind persons such as money detection, face detection, text reading, GPS tracking. The same approach is also used in many applications. One is Giving blind people the great accessibility to their environment is the objective of the smart glass system. Through this device it make easier who are struggling in blind life and also this device helps the blind people to make easier life for doing regular activities.

Objectives:

1. To design economically viable Blind Assistance Glasses for amputees using Solid Works software and analyze it using Finite Element Analysis in Solid works simulation.
2. To design the structure using 3D printing from local vendors.
3. To integrate the glass with Camera-sensors and micro-controllers.
4. To perform clinical trials with blind peoples.

C. Methodology: We are working with blind people as the subject of our experimental assist them. Based on the blind people condition, the blind assistant device structure has to be designed from the eye glasses. We have consulted with the patient and took accurate and precise measurements for the assist them. We are using Dassault Systems Solid Works to design a 3D model of the blind assistance device. This will make the user to wear the eye glasses more comfortably. The next step is in designing the whole eye glass structure with the frame, some of the parts will be plastic due to weight balancing. We are working with sensors which will be attached to different part of the eye glasses which will help to send feedback to our processor which will interim coordinate with various equipment. The system will use a 10-bit microcontroller to make calculations and operations. We are using SONAR Sensors to detect any object, which we will then filter and convert the signal in to digital binary output, so that the blind people thought can be used to control their movement. There will be various other components such as Imaging sensor, speaker. We are experimenting with the (LFW) and combing Microcontroller to get more precise signal from the module. Once the signal is processed, we will start doing trials on the test subject and collect data for learn while the blind people is using the Blind Assistance Glasses. Finally, the subject trials will continue and the structure with the programming

will also amplify, while there will be an established communication between Human and Blind Assistance Glasses.

D. Expected outcome of the research: First, we made our prototype of the blind assistance glasses with plastic materials. We were able to run it successfully then we decided to go further and made a design and print it by 3d printer. A prototype model of the eye glass has been made using Aurdino UNO, Sonar sensor, Buzzer, Vibration and also, we are working with the solid works 3D modeling to make the eye glass more accurate. There are various factors in consideration while making the structural prototype, the design is being adjusted every time with respect to the blind people's comfort ability. We have developed a Blind Assistance Glasses (basic design) to study the object detection and notify the user. In future a better Eye Glasses will be affixed to the blind people.

2. Timeline (Gantt Chart)

Activity	2022						2023					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Literature Review	■	■	■									
Design the climbing device			■	■	■	■						
Theoretical analysis such as structural analysis						■	■	■	■			
Prototyping									■			
Conduct experiment and data collection										■		
Final report											■	■

3. Budget Summary in Taka:

Name of Components	Price	LINK
Arduino Nano US FT232	1800 TK	https://store.roboticsbd.com/arduino-bangladesh/926-arduino-nano-gravitech-us-ft232-original-robotics-bangladesh.html
Ultrasonic Sonar Sensor	200 TK	https://store.roboticsbd.com/sensors/22-ultrasonic-sonar-sensor-hc-sr04-robotics-bangladesh.html
Raspberry Pi	25,000TK	https://store.roboticsbd.com/home/1141-174-raspberry-pi-4-computer-complete-set-robotics-bangladesh.html#/89-ram-8gb/91-microsd_card_size-sandisk_64gb_class_10_uhs_i_microsdxc
Raspberry Pi CAM	5,000TK	
PCB	5,000Tk	
3D Print	9,000TK	
Earpiece	2,000TK	
Vibrator	220TK	https://robodochbd.com/vibration-motor-module
Switch	4,200TK	
Mechanical structure	9,000 TK	
Battery	2,000 TK	
Electronics Equipment's	5,000TK	
Contingency	5,000TK	
Total amount =	73,420 TK	