PLAGIARISM CERTIFICATE

1. I/We <u>Bikram Pratim Bhuyan</u> (Mentor) certify that the Project Proposal titled <u>Saksham /</u> <u>Communication solution for disabled</u> submitted by Mr/Ms <u>Utkarsh Gupta, Aradhya Singh & Priyal</u> <u>Gupta</u> having SAP ID(s) <u>500075374, 500075358 & 500076110</u> has been run through a Plagiarism Check Software and the Plagiarism Percentage is reported to be <u>22 </u>%.

2. Plagiarism Report generated by the Plagiarism Software is attached.

BBhuyan

_____

Signature of Mentor(s)

SafeAssign Originality Report

Computational Linguistics & NLP.BT-CSE-Spz-AI&ML-VI-B5.BT-CSE-Sp... • XYZ

Utkarsh Gupta

Total Score: ● Medium risk   22 %

Submission UUID: 1073345d-ac27-ebef-2d21-3bb329e2d6fc

Total Number of Reports	Highest Match	Average Match	Submitted on	Average Word Count
1	22 %	22 %	02/28/22	1,202
	SHODH Proposal - Saksham.pdf		08:51 PM GMT+5:30	Highest: SHODH Proposal - Saksham.pdf

● Additional content   22 %

Word Count: 1,202
SHODH Proposal - Saksham.pdf

Institutional database (1)   18 %

(1)   *Student paper*

Global database (2)   4 %

(3)   *Student paper*   (2)   *Student paper*

Top sources (3)

(1)   *Student paper*   (3)   *Student paper*   (2)   *Student paper*

Excluded sources (0)

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(1)   PROPOSAL FOR शोध SUPPORT FOR STUDENTS (Under the SHODH program for research)

(A) SUMMARY SHEET:

Project proposal submitted under (tick mark the शोध scheme)

□ RISE (Research & Innovation for Science and Engineering)

(1)   □ RISoCS (Research & Innovation for Students of Computer Science)

□ RISoM (Research & Innovation for Students of Management)

□ RISoL (Research & Innovation for Students of Law)

□ RISoD (Research & Innovation for Students of Design)

□ RISoL (Research & Innovation for Students of School for Life)

□ RISoHS (Research & Innovation for Students of School Health Sciences)

□ RISoMM (Research & Innovation for Students of School for Modern Media)

□ RISoLS (Research & Innovation for Students of School for Liberal Sciences)

(1)   * A SHODH team will have minimum 2 students and a maximum of 5 students. SHODH team can have a

maximum of 2 mentors (For SoE, there is no limit on number of mentors)

Do not put any identifying information in Section (B)

Title: Saksham / Communication solution for disabled

OFFICE PURPOSE

(1)   DATE RECEIVED (in R&D

Office):

PROPOSAL No.

Duration

(Months)

10

Amount

₹ 55,600

2. (1)   Name and Department of applicants with contact details (email and phone):

*Applicant(s) (Name/Course/Department/SAP ID) & Signature Mentor(s) (Name/Department) & Signature

(i) Utkarsh Gupta / B. Tech CSE - AI & ML / 500075374

8938914511, u8karshgupta@gmail.com

Prof. Bikram Pritim Bhuyan

Department of Informatics

(ii) Aradhya Singh/ B. Tech CSE - AI & ML / 500075358

8938822481, saaradhya0125@gmail.com

(iii) Priyal Gupta / B. Tech CSE - AI & ML / 500076110

9415209873, priyalgupta804@gmail.com

(iv)

(v)

(1)   (This page intentionally left blank)

(B) DETAILS OF PROPOSAL:

OFFICE PURPOSE

(1)   DATE RECEIVED (in R&D Office):

PROPOSAL No.

1. Title (Title should be concise & specific)

Saksham / Communication solution for disabled

2. Objectives of the proposal demonstrating contribution to excellence at national level (List pointwise) #

To develop remote communication software accessible to normal, blind, dumb and deaf people, and

construct hardware i.e., an interactive, wireless refreshable Braille device that would be connected to the

software to facilitate communication for blind people.

3. (1)   Expected deliverables of the Proposal (Products/Publications/Patents/ New concept/Spinoff etc.) #

Copyright (software), Patent(hardware), Research Paper

4. Importance/highlights (3-5 bullet points) #

• Communication software for normal, blind, deaf and dumb people.

• A remote communication solution.

• Interactive, refreshable, wireless Braille device for communication.

5. Literature Review and advancement: Demonstrate knowledge of (with references (IEEE format) and contribution to the national state-of-the-art in the relevant

area#

Annexure I

6. Alignment to School specific priorities (SoE: State specifically how the proposal supports the Flagship Projects and expected impacts at Cluster and School levels)#

(v) Integration of AI and Machine Learning with Devices

7. Methodology#

Annexure II

8. (1) Gantt chart of the activities#

Annexure III

9. (1) Budget with justification:

Annexure IV

10. (1) Additional information (as per requirement)

Note: (1)   1) Please attach one-page CVs of Mentors.

2) If required, annexures may be used for items 2-8.

ANNEXURE I

Paper [1] demonstrates the use of Convolutional Neural Network to process the images. First the images are

preprocessed for identifying the hand gestures. This process reduces the chances of error by a huge margin. These

images are fed directly to Convolutional Neural Network. The model then identifies the gesture of the hand and

predict the label for the gesture. Further those labels are transferred to text to speech engine.

Paper [2] uses a sensor-based approach. It uses a series of motion sensors deployed in a hand glove. The motion

sensed by the sensors will be transmitted to a nearby computer. The computer will then preprocess the data

received for any redundant movement. Then this data will be sent to RNN for prediction of the label. Further the

output label will be handed over to the text engine.

Paper [3] uses a vibrator-based approach for braille communication. The system consists of six vibration motors

in a 3x2 matrix. The system receives a text message from a computer through serial communication. The received

text will then be converted to the braille script. Now the braille script having a 3x2 matrix in the form of true falls

will be used for output. In the matrix if a value is true, the vibration motor will be turned on.

The hardware discussed in paper [4] is using a combination of servos for creating a 3x2 matrix for braille scripts.

The internal processing of the system is quite similar to that of paper [3]. The only difference is that this system

is using a servo for providing a sense of touch instead of a vibration motor.

Paper [5] demonstrate a use of Gradient decent for Text to Speech engine. Stochastic differential equation is used

along with forward differential neural network is used for conversion of text to speech.

Paper [6] discusses about a software that allows users to use their voices to control computer functions and dictate

text so this system is made up of two parts: the first part is for processing acoustic signals acquired by a

microphone, and the second part is for interpreting the processed signals and then mapping them to words. They

have used Hidden Markov Models to create models for each letter (HMM) and Mel Frequency Cepstral

Coefficients will be used to extract features (MFCC). Their dataset's features will be trained using vector

quantization, and the dataset's features will be tested using the Viterbi algorithm. A speech recognition technology

will be used only for home automation.

[1] Ankit Ojha, Ayush Pandey, Shubham Maurya, Abhishek Thakur, Dr. Dayananda P 2020. Sign Language to

Text and Speech Translation in Real Time Using Convolutional Neural Network

[2] Mirza, S. F., & Al-Talabani, A. K. (2021). Efficient Kinect Sensor-based Kurdish Sign Language

Recognition Using Echo System Network.

[3] Y. Neeraja,D.Susritha Reddy, J.Kalpana, K.Subhasri, D. Lokesh 2021, AN ADVANCED BRAILLE

SYSTEM-COMMUNICATION DEVICE FOR BLIND-DEAF PEOPLE

[4] Himanshu Gautam, Prerna Gaur 2020, DRISHYAM: Real-Time Text to Braille Conversion and Realization

[5] Vadim Popov, Ivan Vovk, Vladimir Gogoryan, Tasnima Sadekova, Mikhail Kudinov 2021. Grad-TTS: A

Diffusion Probabilistic Model for Text-to-Speech

(2)   [6] Prerana Das, Kakali Acharjee, Pranab Das and Vijay Prasad 2015, VOICE RECOGNITION SYSTEM:

SPEECH-TO-TEXT

https://www.ijert.org/sign-language-to-text-and-speech-translation-in-real-time-using-convolutional-neural-network

https://www.ijert.org/sign-language-to-text-and-speech-translation-in-real-time-using-convolutional-neural-network

https://doi.org/10.14500/aro.10827

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https://www.journal-dogorangsang.in/no_1_NECG_21/22.pdf

https://www.journal-dogorangsang.in/no_1_NECG_21/22.pdf

https://ieeexplore.ieee.org/abstract/document/9342522/ https://proceedings.mlr.press/v139/popov21a.html

https://proceedings.mlr.press/v139/popov21a.html

(3)   https://www.researchgate.net/publication/304651244_VOICE_RECOGNITION_SYSTEM_SPEECH-TO-TEXT

https://www.researchgate.net/publication/304651244_VOICE_RECOGNITION_SYSTEM_SPEECH-TO-TEXT

ANNEXURE II Workflow: -

Hardware: -

Bluetooth Module

Arduino Uno

Input Buttons Output Solenoid Actuators

ANNEXURE III

ANNEXURE IV

Justification item wise:

Proposed expenditure Quantity Value Total

Consumables

• Arduino Uno

• Bluetooth HC05

• Actuator

• Buttons

• PCB Bread Board

2

2

12

16

2

1000

500

2000

100

1000

2000

1000

24000

1600

2000

Equipment

• 3D Printer

1

25,000

25,000

Characterization 0 0 0

Any other (please specify) 0 0 0

Total Budget ₹ 55,600

Source Matches (15)

①	*Student paper*	87%

Student paper	Original source
PROPOSAL FOR शोध SUPPORT FOR STUDENTS (Under the SHODH program for research) (A) SUMMARY SHEET: Project proposal submitted under (tick mark the शोध scheme)	PROPOSAL FOR शोध SUPPORT FOR STUDENTS (Under the SEED program for research) (A) SUMMARY SHEET Project proposal submitted under (tick mark the शोध scheme) RISE (Research & Innovation for Science and Engineering)

①	*Student paper*	83%

Student paper	Original source
□ RISoCS (Research & Innovation for Students of Computer Science) □ RISoM (Research & Innovation for Students of Management) □ RISoL (Research & Innovation for Students of Law) □ RISoD (Research & Innovation for Students of Design)	□ RISoCS (Research & Innovation for Students of Computer Science) □ RISoM (Research & Innovation for Students of Management) □ RISoL (Research & Innovation for Students of Law) □ RISoD (Research & Innovation for Students of Design) □ RISoL (Research & Innovation for Students of Law) □ RISoD (Research & Innovation for Students of Design)

①	*Student paper*	79%

Student paper	Original source
□ RISoL (Research & Innovation for Students of School for Life) □ RISoHS (Research & Innovation for Students of School Health Sciences) □ RISoMM (Research & Innovation for Students of School for Modern Media)	□ RISoMM (Research & Innovation for Students of School for Modern Media) □ RISoL (Research & Innovation for Students of School for Life) □ RISoHS (Research & Innovation for Students of School Health Sciences) □ RISoMM (Research & Innovation for Students of School for Modern Media)

① Student paper	100%

Student paper	Original source
* A SHODH team will have minimum 2 students and a maximum of 5 students.	* A SHODH team will have minimum 2 students and a maximum of 5 students

① Student paper	88%

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① Student paper	100%

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Name and Department of applicants with contact details (email and phone): *Applicant(s) (Name/Course/Department/SAP ID) & Signature Mentor(s) (Name/Department) & Signature	Name and Department of applicants with contact details (email and phone) *Applicant(s) (Name/Course/Department/SAP ID) & Signature Mentor(s) (Name/Department) & Signature

① Student paper	72%

Student paper	Original source
(This page intentionally left blank)	(This page intentionally left blank) (B) DETAILS OF PROPOSAL

① Student paper	100%

Student paper	Original source
DATE RECEIVED (in R&D Office):	DATE RECEIVED (in R&D Office)

① Student paper	100%

Student paper	Original source
Expected deliverables of the Proposal (Products/Publications/Patents/ New concept/Spinoff etc.) #	Expected deliverables of the Proposal (Products/Publications/Patents/ New concept/Spinoff etc.)

① Student paper	100%

Student paper	Original source
Gantt chart of the activities#	Gantt chart of the activities

① Student paper	100%

Student paper	Original source
Budget with justification:	Budget with justification

① Student paper	100%

Student paper	Original source
Additional information (as per requirement)	Additional information (as per requirement)

① *Student paper*	80%

Student paper	Original source
1) Please attach one-page CVs of Mentors.	1) Please attach brief CVs of Mentors

② *Student paper*	89%

Student paper	Original source
[6] Prerana Das, Kakali Acharjee, Pranab Das and Vijay Prasad 2015, VOICE RECOGNITION SYSTEM: SPEECH-TO-TEXT	Das, Prerana & Acharjee, Kakali & Das, Pranab & Prasad, Vijay Speech-To-Text

③ *Student paper*	93%

Student paper	Original source
https://www.researchgate.net/publication/304651244_VOICE_RECOGNITION_SYSTEM_SPEECH-TO-TEXT https://www.researchgate.net/publication/304651244_VOICE_RECOGNITION_SYSTEM_SPEECH-TO-TEXT	Retrieved from https://www.researchgate.net/publication/304651244_VOICE_RECOGNITION_SYSTEM_SPEECH-TO-TEXT Retrieved from https://www.researchgate.net/publication/304651244_VOICE_RECOGNITION_SYSTEM_SPEECH-TO-TEXT