KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
INDIAN INSTITUTE OF SCIENCE CAMPUS, BENGALURU -560012
Telephone: 080 -23341652, 23348848, 23348849, Telefax: 23348840
Email: spp@kscst.iisc.ernet.in Website: www.kscst.iisc.ernet.in/spp.html or www.kscst.org.in/spp.html

KSCST

FORMAT FOR STUDENT PROJECT PROPOSAL FOR THE 42nd SERIES OF STUDENT PROJECT PROGRAMME

**STREAM C:
PROJECT PROPOSAL
FOR STUDENT PROJECT PROGRAMME**

(Hand written proposals will not be accepted, please fill all the details in this MS word file as per the following format. Kindly take a photocopy of completely filled project proposal and Demand Draft for filling up the Google Forms.)

https://goo.gl/forms/UsilS6ODB0BZL2QC3

*For details please Contact email: spp@kscst.iisc.ernet.in and visit http://www.kscst.iisc.ernet.in/spp.html
Telephone : 080 23600978, 080 23341652 Extn.25*

1.	**Name of the College:** BMS Institute of Technology & Management
2.	**Project Title:** Emotion Perception from Text and Speech using Reinforcement Learning
3.	**Branch:** Computer Science & Engineering(CSE)
4.	**Broad Theme / Category (as per KSCST poster) :** Health
5.	**Name(s) of project guide(s) :** 1. **Name :** Dr. Thippeswamy G **Email id :** hodcse@bmsit.in **Contact No.:** 9448864856

6.	**Name of Team Members:**
	1. **Name:** Adarsh Kumar Sah **USN No. :** 1BY15CS006 **Email id:** adarshkumar.sah6@gmail.com **Mobile No. :** 7411929815 2. **Name:** Bhargav Sagiraju **USN No. :** 1BY15CS016 **Email id:** bhargavsagiraju@gmail.com **Mobile No. :** 8861048971 3. **Name:** Chandrashekar S **USN No. :** 1BY15CS020 **Email id :** chandrasshekar03@gmail.com **Mobile No. :** 8050613162

7.	**Team Leader of the Project :**
	Name: Chandrashekar S
	USN No. : 1BY15CS020
	Email id: chandrasshekar03@gmail.com
	Mobile No. : 8050613162
8.	**Processing Fee Details (Demand Draft should be drawn from Canara Bank / State Bank of India only):**
	(processing fee of Rs. 1000/- drawn in favor of Secretary, KSCST, Bangalore – 12)
	Demand Draft No. :
	Date :
	Bank name :
	Note: Please indicate Team Leader name, Project Title and Name of the College on the backside of the DD.
9.	**Date of commencement of the Project:** 5/11/2018
10.	**Probable date of completion of the project:** 10/06/2018
11.	**Scope / Objectives of the project:**
	• Understanding the domain: sentiment analysis with emotion detection from text data and reinforced learning which allows decision making. To train a model to make a sequence of decisions from the provided environment, the system uses reinforcement learning to employ all the trials and errors to come up with the emotion-based solution.
	• The goal is to maximize the overall efficiency of giving the smart results for user queries, by analysing the state of user and extracting features and by rewards or penalties for every iteration of user input. Raspberry pi 3 and subsystems featuring LED display which execute instructions per cycle time is used as interface of the system.
	• Running high level datasets from Intel Movidius Neural Compute Stick - a unique device designed to facilitate development, tuning and deployment of deep neural networks where the nodes require computation to be performed on-device where power consumption, latency and privacy are crucial factors in product performance.
	• Featuring Myriad VPU, the Neural Compute Stick is able to perform the complex, highly parallel mathematical operations required for modern deep neural networks at high speed (vision processing unit). Testing the hardware system with maximum test cases with numerous datasets.

12.	**Methodology:**
	• Incorporating the theoretical and technical challenges involved in modelling and building systems that can reason, solve problems, acquire and use knowledge, make decisions, and communicate in natural language and Introduction of the science and engineering of intelligent systems, including the correspondence with natural cognitive systems and the design of smart tools acts as the primary purpose of this system.
	• To compare the performance of the proposed system, multiple initial simulations of problems will be executed. The goal is to recognise the user query with maximum accuracy and respond accordingly, with related emotions and the adaption to the previous corrected user queries. The number of steps varies as the simulations are preformed and the semi supervised and supervised algorithm to derive the results and store them to the checkpoints database as a reward. The decisions will be made according to the steps proposed by the algorithm.
13.	**Expected Outcome of the project:**
	• The system is expected to make a clear-cut prediction and finding the optimal mapping of morphemes and identifying the class of morphemes. It makes sure that every bit of user query is processed and based on the training, the emotion is derived and respond to the user in minimal time, with smart suggestions/ requirements.
	• This system can be used in several fields such as healthcare, general user interactions and monitoring, customer service and other areas where communication is essential. The system can also learn from user habits and produce suggestions to the user, this allows for more personalised usage. The system can have several integrations with Raspberry Pi and Intel Movidius to have lifelong learning to continue making decisions and learn according to patterns. Reinforced learning will allow the machine to make several decisions which are autonomous and change with user preferences. These decisions will help the user to make careful choices depending on the machine suggested notifications and the user's own intuition. These suggestions are based on patterns learned over time and help in lifelong learning.
14.	**Application of the project:** **Education / Academic**
	• This system can be used in several fields such as healthcare, general user interactions and monitoring, customer service and other areas where communication is essential.
	• The system can also learn from user habits and produce suggestions to the user, this allows for more personalised usage. The system can have several integrations with Raspberry Pi

	and Intel Movidius to have lifelong learning to continue making decisions and learn according to patterns. Reinforced learning will allow the machine to make several decisions which are autonomous and change with user preferences. These decisions will help the user to make careful choices depending on the machine suggested notifications and the user's own intuition. These suggestions are based on patterns learned over time and help in lifelong learning.
15.	**Is the project proposed relevant to the Industry or Institution?: No**
16.	**In case of fabrication work in the project, an engineering drawing with dimensions / detailed design calculations (approximately) of the machine / device should be attached to the proposal.** No fabrication Involved
17.	**Can the product or process developed in the project be taken up for filing a Patent?** **Yes** **If Yes, you may contact Patent Information Centre of KSCST for more details** Karnataka State Council for Science and Technology Indian Institute of Science Campus, Bengaluru - 560012 Tel: +91-080-2334 1652 / 2334 8848 / 2334 8849 Email : patent@kscst.iisc.ernet.in
18.	**Budget details (break-up details should be given) :**

Budget	Amount
a) Materials / Consumables	10000.00
b) Labor	0.00
c) Travel	0.00
d) Report	700.00
e) Miscellaneous	0.00
Total	10700.00

19.	**Any other technical details (Please specify) :**
	 Hardware Used:
	 ➡ Raspberry Pi 3B+:
	     • 1.4GHz 64-bit quad-core processor
	     • dual-band wireless LAN

	• Power-over-Ethernet support (with separate PoE HAT)
	➡ Intel Movidius Neural Compute Stick:
	    • Used with Raspberry Pi 3 Raspbian Stretch.
	    • Movidius Myriad 2 VPU works with Caffe and Tensorflow based convolutional neural networks.
	➡ System Specification:
	    • RAM: 2GB
	    • 2GB of Graphics Memory
	Software:
	➡ Tools used: Tensorflow API, spaCy, Movidius Training Set.
	➡ Specialized software and an AI language PROLOG and LISP.

20.	**SPP Coordinator (Identified by the college) :**
	
	(Note: KSCST will be providing financial and technical support to student projects and these projects will be evaluated by experts in identified nodal centers. There will be interaction between students and experts to fine-tune the project in the nodal centre. The project recommended by experts will be selected for state level Seminar and exhibition. Hence the role of SPP Co-ordinator is very important to KSCST regarding receipt of project sanctioned, amount released to the College, informing the concerned project guides regarding evaluation of projects and sending the softcopy and hardcopy of the reports to KSCST.
	
	Further interacting with the Principal of the institution in submission of statement of expenditure, etc. Hence it is requested that the Principal of the institution to nominate the SPP Co-ordinator for smooth functioning of educational Programmes of KSCST.)
	
	     Name: Mr.Sriganesh.T.G
	
	     Email id: ganeshmech@bmsit.in
	
	     Contact No.: 9738456024

(Name & Signature of Project Guide with Seal)	**(Name & Signature of HOD with Seal)**
Email id: hodcse@bmsit.in	**Email id:** hodcse@bmsit.in
Contact No.: 9448864856	**Contact No.:** 9448864856

DECLARATION

(From Project Students)

We, the project team hereby declare that the details enclosed in the project proposal are true and correct to the best of our knowledge and belief and we undertake to inform KSCST of any changes therein in the project tile, students name will be intimated immediately. In case any of the above information is found to be false or untrue or misleading, we are aware that we may be held liable for it. We hereby authorize sharing of the project information with this project proposal with the Karnataka State Council for Science and Technology, Bangalore.

We are aware that the project team has to exhibit / demonstrate the project in the nodal centre and interact regarding project with the experts and to exhibit the project in the State Level Seminar and Exhibition (if selected). If the student team fails to attend the evaluation in nodal centre or fails to attend the State Level Seminar and Exhibition, the supported project amount will be returned back to KSCST.

We also hereby, enclose the endorsement form to KSCST, Bengaluru.

Name of the students	Signature with date
Adarsh Kumar Sah	
Bhargav Sagiraju	
Chandrashekar S	

ENDORSEMENT

(From College, endorsement to be taken in the institution / Department Letter head)

This is to certify that 1) Mr. Bhargav Sagiraju, 2) Mr. Adarsh Kumar Sah, 3) Mr. Chandrashekar S, are bonafide student(s) of Department of Computer Science Engineering, in the degree program of our institution. If the project proposal submitted by these students under the 42nd Series of Student Project Programme is selected by KSCST, we will provide the requisite laboratory / Computer / infrastructure support in our college / Institution. Further we also take necessary steps to see that the project team will exhibit / demonstrate their project in the nodal centre and in the State Level Seminar and Exhibition (if selected). If the student team fails to send the completed project report or fails to attend the evaluation in nodal centre or fails to attend the State Level Seminar and Exhibition, the supported project amount will be returned back to KSCST.

(Name & Signature of Project Guide with Seal)	(Signature of HOD with Seal)	(Signature of the Principal with Seal)
Email id: hodcse@bmsit.in	**Email id:** hodcse@bmsit.in	**Email id:** principal@bmsit.in
Contact No.: 9448864856	**Contact No.:** 9448864856	**Contact No.:**