Proposal Reference No.: BT/TEMP6581/PACE-21/20

FACE SHEET

Title Of The Proposal
Aarogya Patrika
Proposal Category
AIR-Academic Innovation Research
Applicant Institute
K J Somaiya Institute of Engineering and Information Technology Sion, Mumbai
Proposal Duration
15 (months)
Relevant Area
Healthcare-Devices and Diagnostics
Support Requested From BIRAC
Grant-In-Aid
Solely/ Collaborative
Solely by in house R&D unit of industrial firm

Names Of The Project Coordinator And Other Key Investigator(s) Involved In The Project					
Project Coordinator Details					
Sl. No.	**Name**	**Designation**	**Organization**	**E-Mail**	**Resume**
Project Coordinator					
1	Dr. Suresh Ukarande	Principal	K J Somaiya Institute of Engineering and Information Technology Sion, Mumbai	principal.tech@somaiya.edu	View File
Applicant Key Investigators					
1	Dr. Sunita Patil	Vice Principal and Professor Computer Engineering	K J Somaiya Institute of Engineering and Information Technology Sion, Mumbai	vice_principal@somaiya.edu	View File
2	Dr. Hariram Chavan	Professor, Information Technology	K J Somaiya Institute of Engineering and Information Technology Sion, Mumbai	hariram@somaiya.edu	View File

Declaration Document
View File

INSTITUTION DETAILS

Name of the Institution : **K J Somaiya Institute of Engineering and Information Technology Sion, Mumbai**			
Contact Details			
Address1:	Somaiya Ayurvihar Complex, Eastern Express Highway	**Address2:**	Near Everard Nagar, Sion East
Street/Village:		**City/Town:**	Mumbai
State:	MAHARASHTRA	**Country:**	India
Pincode/Zip:	400022	**Landline:**	91-22-24061408
Fax:	--	**Website:**	www.kjsieit.somaiya.edu

Brief Background of the Institution
Year of Establishment of the Institution
2001
Recognition or Accriditation Status
â€˜Aâ€™ grade by National Assessment & Accreditation Council NAAC Accreditation by National Board of Accreditation NBA Three Programs Affiliated to the University of Mumbai

Please upload registration or recognition certificate from a statutory body
View File
R&D Activity
â€œMobile App for Farmersâ€• is main project completed in 2017-18 for Godavari Biorefinaries Ltd, Samirwadi Karnataka costing Rs. 46,40,000/- and Design and fabrication of walking assistance device for paralyzed patient, A Study of library branding through implementation of value added services for enhancing library usage, Voice Controlled Wheelchair using Android Mobile, IoT based Maximum Solar Power Point Tracking System For Greenhouse Application, The SaviourBag-Accidental/ Suicidal, Audio Deblurring & Watermarking Using Singular Value Decomposition are the projects completed in last four years under minor research grant of Mumbai University.
Source of Core Funding
Somaiya Trust

Has The Institution Received/Applied For Funding From Government/Any Other Agency For The Same Or Related Project? If Yes,then Give details of funding received/ requested by the Institute for the submitted proposal or technically related proposal from other funding agencies (indicating the Project Title, Amount Received/Approved, Funding Agency And Current Status Of The Project.)
NO

Project Coordinators Details			
Title	Dr		
First Name	Suresh	**Last Name**	Ukarande
Designation	Principal	**DOB**	04/08/1963
Gender	Male	**Highest Qualification**	PhD
Email	principal.tech@somaiya.edu	**Address1**	Principal
Address2	K. J. Somaiya Institute of Engineering and Information Technology	**Street/Village**	Somaiya Ayurvihar Complex Eastern Express Highway Near Everard Nagar,
City/Town	Sion East, Mumbai	**Pin / Zip Code**	400022
Country	India	**State**	MAHARASHTRA
Landline	91-22-24061408	**Mobile**	91-9820555761

Resume	View file		
Applicant Institute Authorisation Letter To For Submission Of Proposal			View file

Shareholding Pattern Of The Applicant Institute				
S.No	**Category of shareholder**	**Number of shareholders**	**Total number of shares**	**Total share holding as % of total number of shares**
Shareholding of promoter & Promoter Group				
1. Indian				
1.a	Indian Citizen			
1.b	Indian Organization			
1.c	NRI holding Indian Passport (Does not include OCI/PCI)			
2. Foreign				
2.a	Foreign NRI			
2.b	Foreign Indiviudal			
2.c	Foreign Organization			
	Total	0	0	0
Public Shareholding				
1. Indian				
1.a	Indian Citizen			
1.b	Indian Organization			
1.c	NRI holding Indian Passport (Does not include OCI/PIO)			
2. Foreign				
2.a	Foreign-NRI(OCI/PIO)			
2.b	Foreign Individual			
2.c	Foreign Organization			
	Total	0	0	0
	Grand Total	**0**	**0**	**0**

PARTICULARS OF THE PARTNER

-NA-

PROPOSAL SUMMARY

1. Stage of project?
Current TRL -6 Expected TRL -9

2.1. Aim/Objective of the proposal
ASHA Accredited Social Health Activists workers are helping to build a strong foundation for promoting healthy practices in our society. They play critical role for various health programmes of the Government of India. Now, it is time to empower them by imparting training and upgrading skills as a majority of ASHAs are village women with low literacy skills and they face operational challenges in conducting routine maternal, new-born, child health activities and infection prevention. ASHAs are the first point of contact for the needy rural masses and can become frontline healthcare workers by imparting training in regional languages. The â€œAarogya Patrikaâ€• is designed with the aim of blurring all these possibilities of lack of access to healthcare information, refresher training and meaningful supervision so that their ability to contribute to improved maternal and new-born health outcomes will play a major role.
2.2. Novelty and inventive step of the proposal
The app has the added benefit of improving the social status of women health workers, since they will be some of the first ones to get smartphones in their villages and blocks. It actually enhances humanised interaction by guiding the service providers to have structured inter-personal conversations with the mother and her family members to counsel and care for them better. The app is available in multiple regional languages. The app also simplifies public administration, eliminating the need for data-entry operators. The app manages to convert the data into digital format right from the point of entry, to be used, analysed, accessed and processed across the health system by all relevant staff members.

3. Essence Of The Study Highlighting The Following
3.1. Significance and Impact/value of the proposal
App can help ASHAs identify and correctly refer sick new-borns Application can improve CHW Community Health Worker knowledge and skills Refer and track high risk pregnant women, recently delivered women, new-borns and infants Supporting midwives in the field Addressing the digital divide, low literacy and poor connectivity
3.2. Rationale
Â» Improvement in counselling sessions: It will aid them in remembering important topics and, with all messages now available in the application, they no longer forget to communicate important information during home visits Â» Visual Aids: Ability to show them pictures and videos of relevant subjects Â» Assessment Guide: Assistance in assessing the condition of pregnant women, new mothers and new-born children. Â» Improved Monitoring: Real time monitoring of ASHAs will result in increasing the self-confidence and engagement of the ASHAs Â» Medical Administrator: Access to real-time data for the Medical Administrator regarding the performance of ASHAs - aiding them in counselling low performing ASHAs in order to improve performance.
3.3. Inventive Step/Innovation
Â· Voice-guided vernacular messages, illustrations, videos Â· Easily accessible on-the-go content Â· Auto-categorization of sick new-borns with automated alerts to supervisors Â· Web-based dashboard and reports
3.4. Scope Of Industrial Application

In todayâ€™s information era people need information even on the move. The relatively low cost mobile wireless communication, creative thinking and thrust for information on the move laid down the foundation mobile applications. The only industry which is growing continuously in the last few years is the mobile application industry. Considering the penetration, utilization and benefits of mobile applications, it can be extended to empower the ASHA workers. Design and deployment of the â€œAarogya Patrikaâ€• mobile application in multiple regional languages will improve the implementation of health-related programmes initiated by government of India through ASHA workers. Based on health-related data collection and analysis by â€œAarogya Patrikaâ€•, the requirement for medical solutions such as vaccines, medical kits etc. can also be optimized. As the data is collected over a period of time, the future prediction of drugs, medical facilities, equipment etc for existing as well as new diseases is also possible. This will benefit the ASHA workers, society and country at large.

3.5. National Importance/ Social Relevance

Social development of a nation is dependent on the health of its population.

The impact of ASHAs on their communities is largely dependent on the quality of their training and other health system factors. Currently there is inadequate health system support for ASHAs including a lack of strong supervision, limited opportunities for continuing education and training and poor workload management. They get limited training on community mobilization, child immunization and others due to which they have limited knowledge and skills.

Empowering Ashas with Aarogya Patrika will help them to overcome the barrier

3.6. Commercialization Potential

Availability of high quality logistics data has been one of the greatest challenges facing the healthcare system.

Without these data, decision makers cannot adequately manage the supply chain, risking the possibility that patients wonâ€™t receive the medicines they need. Most of these applications allow a lower-level health facility to transmit information regarding their supply of essential medicines to the higher-level facility or warehouse which then provides the commodities. In some cases, these applications have even been utilized by community health workers to ensure they have the basic supplies needed.

3.7. Potential Competitors

Mobile Health Data Collection Platforms such as Dimagi , Mobilitas , as well as government initiatives such as M-Sehat now offer software platforms that support case management and integrate with electronic medical record systems. Many academic research projects and initiatives have also been developed for community health workers that leverage the increasing availability of smart phones.

3.8. Risk Factors

Most ASHA workers work in areas where infrastructure becomes a major bottleneck for communication. In this case our intervention is needed to work over a 2G network connection. â€œAarogya Patrikaâ€• app helps ASHA workers in case the network is not available by storing the information locally and as and when the network will be available, the data will be sent to the server. Hence â€œAarogya Patrikaâ€• takes care of infrastructure challenges.

As most of the ASHA workers work frequently outside in bright sunlight, it will be better to provide the anti-glare covers for the cell phones for a smooth working environment.

3.9. Has the Preliminary work done so far. If yes then please upload the preliminary data available

Yes View File

3.10. National nad international status of proposed technology or product.

A sample of existing mobile phone based tools applied to maternal and child health are mentioned below:

Text message systems : Server-based SMS text messaging systems such as Child Count+ and mMitra are used to deliver maternal and child health information to mothers, and provide epidemiological data for use by the local government.

Toolkits: Some higher-cost diagnostic hardware toolkits, such as Care Mother , include commercial biomedical devices Doppler ultrasound device, blood pressure monitor, and electronic glucose meter, urinalysis , which are used to help identify and prevent high risk pregnancies.

3.11. Business strategy

We would like the government to implement â€œAarogya Patrikaâ€• as it empowers frontline health workers to do their jobs better as it helps in making decisions in health related issues. The ASHAs can keep a track of missed field visits, diseases in the locality and appropriate measures can be taken accordingly. Incase of newborn, an alert message is sent notifying the ASHA and the record of inoculation is also stored. It also provides real-time alert generation based on current data available and domestic situations.Hence â€œAarogya Patrikaâ€• is a complete solution for the Frontline Health Workers.

4. Is This Proposal Based On IP Owned The Company/Collaborator/Licensed From Abroad?
No

5. Anticipated Outcome/Deliverables
1 Empower ASHA by flexibility to attend training and skills upgrading through remote access.
2 Improved Self-learning and Counselling through multiple regional languages.
3 Real-Time Monitoring and Management of health-related government programmes.
4 Enhancing decision-making capabilities with real time analysis.
5 Seamless integration of multiple roles for ASHA workers

6. Relevant references
1 Indrani Medhi, Aman Sagar, and Kentaro Toyama. 2006. Text-free user interfaces for illiterate and semi-literate users. In Information and Communication Technologies and Development, 2006. ICTDâ€™06. International Conference on. IEEE, 72â€“82.
2 R. Fletcher, X. S. DÃ-az, H. Bajaj and S. Ghosh-Jerath, Development of smart phone-based child health screening tools for community health workers, 2017 IEEE Global Humanitarian Technology Conference GHTC , San Jose, CA, 2017, pp. 1-9, doi: 10.1109/GHTC.2017.8239337.
3 R. V. Vaidya and D. K. Trivedi, M-health : A complete healthcare solution, 2017 International Conference on Computing Methodologies and Communication ICCMC , Erode, 2017, pp. 556-561, doi: 10.1109/ICCMC.2017.8282527.
4 N. D. Valakunde et al., Smart ASHA pregnancy monitoring system, 2017 International Conference on Big Data, IoT and Data Science BID , Pune, 2017, pp. 185-192, doi: 10.1109/BID.2017.8336596.
5 Bhatia, Kavita. 2014 . Performance-based incentives of the ASHA scheme stakeholders perspectives. Economic and political weekly. 145-151.

IP DETAILS

1. IP STATUS
1.1 Details of Background IP generated so far and possibility of generating new IP through this project
No IP has been generated so far but it can be generated as the project progresses.
1.2 Countries/jurisdictions where the applicant intends to practice/market the proposed technology
India
1.3 List Of Patents That Appear To Cover Any Part Of The Technology Of Interest Or Similar (And Possibly Overlapping) Technologies And Thereby Restrict The Freedom-To-Operate In The Envisaged Area.

Patent Number	Patent Title
NA	NA

1.4 How Would The Present Proposal Be Able To Counter The Above Restrictions?
No restrictions as it is an independent proposed solution.
1.5 List The Various Patented Technologies/Processes/Products That Would Be Made Use Of For Manufacturing/Commercialization Of The Proposed Product/Process Along With The Status Of The Patents. whether Permission/License For Use If Such A Patent Owned/Being Sought For By The Company?
Not applicable

2. In Case The Technology Is Licensed From Abroad, Status Of Independent Validation In The Country Is Too Be Provided Clearly
Not applicable

3.1. Regulatory Approvals and Protocols	
Regulatory Approvals	**Status Approvals obtained / Approvals in process/ Applications yet to be submitted to the concerned authorities**
NA	No Approvals required
3.2 Protocols:Protocol in the prescribed format required by the concerned agency for giving approvals?	
NA	

REGULATORY DETAILS

Micro-organisms	No
GE-organisms	No
Plants	No
Vertebrate animals: Small laboratory animals	No
Vertebrate animals: Large Animals	No
Vertebrate animals: Non-human primates	No
Hazardous materials	No
Human clinical materials	No
Human subjects	No
IAEC Approval	No
CPCSEA Approval	No
IEC Approval	No
CDSCO(DCGI) Approval	No
IBSC Approval	No
RCGM Approval	No
GEAC Approval	No
IC-SCR Approval	No
NAC-SCRT Approval	No
Envoirnment Safety Authority Approval	No
DGFT Approval	No
NBA Approval	No
PCB Approval	No
Any Other national Authority(Specify) Approval	No
Certificate	View File
Detail	NA
Academic Research Facility	Yes
Non-GLP Facility	No
GLP-Facility	No
Non-GMP Facility	No
GMP-Facility	No

OBJECTIVE AND TIMELINES

PROPOSAL OBJECTIVES & WORK PLAN
Objective1: To introduce the concept of online training for skill development of ASHA workers in multiple regional languages.
Methodology/Experimental Design To Accomplish The Stated Objective:
1. Creating online sessions for new health related programs in multiple regional languages. 2. Creating online sessions for new ASHA workers in multiple regional languages. 3. Flexibility to select the regional language.
Alternate Strategies: 1. Videos of online sessions will be made available in the app as well as on social media. 2. All videos will be available in Hindi and English.
Objective2: To explore different data based rule generation decision making system for health-related issues while optimizing the availability of ASHA workers for real time requirements.
Methodology/Experimental Design To Accomplish The Stated Objective:
1. Exploratory data analysis to identify the trend. 2. Rule generation using training learning algorithms for decision making. 3. To increase the number of ASHA workers based on regional real time requirement. 4. Real time requirements-based task assignment to ASHA workers.
Alternate Strategies: 1. Use of Artificial Intelligence in trend identification. 2. Data Analysis may suggest the region based new roles for ASHA workers.
Objective3: To achieve the real time management of health-related government programs.
Methodology/Experimental Design To Accomplish The Stated Objective:
1. Need based content generation at national level. 2. Live tracking of work done by ASHA workers.
Alternate Strategies: 1. Region based analysis of data and content generation.

TIME LINES

Activities	Month Of Start Of Activity	Month Of End Of Activity	Indicators Of Progress	Role of Applicant Institute	Role Of Partners
OBJECTIVE :To introduce the concept of online training for skill development of ASHA workers in multiple regional languages.					
Requirements gathering	0	1	Filled Questionnaire.	1. One to one interaction with ASHA workers. 2. Consultation with Heads of health-related government officers/Doctors.	--NA--
Design and Analysis	1	3	Architecture and User Stories	1. Create Architecture for Aarogya Patrika. 2. Create user stories based on gathered requirements. 3. Selection of technology, database, etc.	--NA--
Basic development of mobile app Aarogya Patrika	3	5	Mobile App with Basic Features	1. Development 2. Optimize coding	--NA--

Testing of Mobile App for basic features	5	7	Mobile App with zero traceable defects	1. Unit Testing 2. Component Testing 3. Integration, Verification and Validation Testing	--NA--
Adding features of online session.	7	9	Mobile App with Online Session capability	1. Development 2. Optimize coding	--NA--
Testing features for online session.	9	10	Conduction of online session through Mobile App	1. Unit Testing 2. Component Testing 3. Integration, Verification and Validation Testing	--NA--
Adding features of multiple languages viz. Hindi and Marathi and Testing	10	11	Mobile App in Hindi and Marathi	1. Development in regional language 2. Testing	--NA--
Aarogya Patrika Mobile App available in English, Hindi and Marathi	0	11			--NA--
					Financial Input Required(Rs.In Lakhs):

Activities	Month Of Start Of Activity	Month Of End Of Activity	Indicators Of Progress	Role of Applicant Institute	Role Of Partners
OBJECTIVE :To explore different data based rule generation decision making system for health-related issues while optimizing the availability of ASHA workers for real time requirements.					
Data entries for approximately 1000 families	11	12	Data Entries in System	1. Data entries from various regions.	--NA--
Exploratory data analysis	12	13	Trends identification	1. Selection and development of best machine learning algorithm.	--NA--
Trends	11	13			--NA--
					Financial Input Required(Rs.In Lakhs):

Activities	Month Of Start Of Activity	Month Of End Of Activity	Indicators Of Progress	Role of Applicant Institute	Role Of Partners
OBJECTIVE :To achieve the real time management of health-related government programs.					
Real time situation based alert generation	13	14	Alert generation	1. Based on trends identified, suggest optimized solutions.	--NA--
Overall working and testing	14	15	Fully functional Aarogya Patrika	1. Regression testing 2. Testing for negative scenarios	--NA--
Fully functional Mobile App Aarogya Patrika	13	15			--NA--
					Financial Input Required(Rs.In Lakhs):

GANTT/PERT Chart Depicting The Milestones With Timelines To Achieve The Proposed Objectives
View File

PROPOSAL MILESTONES

Sl. No	Milestone Name	Month Of End Of Activity(In Months)	Description
1	Siging of Contract		--NA--
2	Aarogya Patrika Mobile App available in English, Hindi and Marathi	11	The first objective of Aarogya Patrika
3	Trends	13	The second objective of Aarogya Patrika
4	Fully functional Mobile App Aarogya Patrika	15	The Aarogya Patrika mobile app which empowers the ASHA workers.
5	Submission of Report	15	--NA--

BUDGET JUSTIFICATIONS

AVAILABLE EQUIPMENTS DETAILS

Details of Equipment Available for this Project with Applicant Institute

Applicant Institute		
S.No	**Name Of Equipment**	**Units**
1	PCâ€™s/Laptop	5.00
2	Test Systems	2.00
3	WI-FI high speed internet	156.00
4	Mobile Phones	5.00
5	Printers	2.00

PROPOSED EQUIPMENTS & ACCESSORIES DETAILS

Details Of Equipment Proposed To Be Acquired through Applicant Institute Contribution

Details Of Equipment Proposed To Be Acquired Through BIRAC Contribution For Applicant Institute

S.No	Infrastructure/Equipment	Capacity	Quantity	Specific Requirement In The Project	Estimated Value(Rs.In Lakhs)
1	Server Costing and DEVOPS CI CD Pipeline	500	1	We are only hiring the services related to the server. To provide auto-scalable, redundant, dynamic computing capabilities, storage services.	0.60
2	SMS services/Push Notification	1	1	For sending alert messages to ASHA workers.	0.20
3	Support Service	12	12	For the above services mentioned	0.20
				Total :	**1.00**
				Accessories To Be Acquired (Rs in Lakhs):	**1.00**

Details Of Equipment Proposed To Be Acquired Through BIRAC Contribution For Partner(s)

MANPOWER DETAILS AVAILABLE

Manpower (Scientific And Technical) already available with Applicant Institute who will work in this Project

S.No	Name	Qualification	Age(In Years)	Full/Part Time(hrs/day)	Exp.(In Years)	Role In The Project	Position
1	Dr. Suresh Ukrande	Ph.D		1	33.00	PI and Overall Coordination	Principal, Professor
2	Dr. Sunita Patil	Ph.D		2	20.00	Data Analytics and Incremental Learning	Vice-principal, Professor

3	Dr. Hariram Chavan	Ph.D		4	24.00	Android Developer and Machine learning algorithms	Professor

Manpower (Scientific and Technical) already available with Partner(s) who will work in this Project

MAN POWER DETAILS - TO BE HIRED

Manpower (scientific and technical) to be hired for the project through Applicant Institute Contribution

Form not submited

Manpower (scientific and technical) to be hired for the project through Partners contribution

Form not submited

Manpower (Scientific And Technical) to be hired for the Project through BIRAC Contribution for Applicant Institute

S.No	Position	No Of Positions	Minimum Qualification	Exp. (In Years)	Age (In Years)	Hired Duration (in years)	Role In The Project	Proposed Annual Salary(Rs. In Lakhs)	Total Cost
1	Cloud and DBA	1	Engineering Graduate	4.00		1.3	Database administration and server configuration	5.00	6.50
2	Android Developer and Data Analyst	1	Engineering Graduate	4.00		1.3	App development and Data Analysis	5.00	6.50
3	Web Developer	1	Engineering Graduate	4.00		1.3	For handling the admin panel and integration with the Aarogya Patrika app.	4.00	5.20
4	Data entry operator	1	BSC IT	1.00		0.5	For conducting field visits and data entry of the existing family	2.00	1.00
									Total : 19.20

Manpower (Scientific And Technical) To Be Hired For The Project Through BIRAC Contribution For Partner(s)

Form not submited

CONSUMABLES DETAILS

Through Applicant Institute Contribution

Through Partner(s) Contribution

Form not submited

Through BIRAC Contribution For Applicant Institute

S.No	Items	Quantity	Units (e.g:- g/ml etc.)	Approximate Cost (Rs.in lakhs)	Justification For The Requirement

1	Smart Phone	25	Units	2.50	For training of ASHA workers.
					Total Amount Required For Consumables: 2.50

Through BIRAC Contribution For Partner(s)

Form not submited

JUSTIFICATION FOR OTHER RECURRING HEADS

Through Applicant Institutes Contribution

S.No	Travel Cost (Rs.in lakhs)	Travel Justification	Contingency Cost (Rs.in lakhs)	Contingency Justification
1	0.00		0.00	

Through BIRAC Contribution For Applicant Institute

S.No	Travel Cost (Rs.in lakhs)	Travel Justification	Contingency Cost (Rs.in lakhs)	Contingency Justification
1	0.40	To conduct survey, get input from ASHAâ€™s and according make changes in the app.	0.25	Misfortunes, Misjudgments, Wrong calculations.

DETAILS ON WORK TO BE OUTSOURCED

S.No	Work Proposed To Be Outsourced	Name Of The Institution/Organization To Whom It Is Proposed To Be Outsourced	Whether the Applicant has Signed any Contract with this Institution/Organization	Estimated Cost Involved In (Rs.in Lakhs)
1	Content Creation	No. We will contact the relevant companies/ government agencies for content creation.	No	2.00
2	Doctor	We are in continuous contact with government medical officers and doctors at Taluka/District levels, as well as the with Private doctors for insights into the Aarogya Patrika app.	No.	3.00

Total Estimated Cost Involved In (Rs.in Lakhs)	Percentage(%) of Contribution by the Applicant Institute	Contribution By the Applicant Institute (Rs.in Lakhs)	Support Requsted from BIRAC Rs.in Lakhs)
5.00	0.00	0.00	5.00

OTHER FINANCIAL DETAILS
Details Of The Other Sources Of Funding Received/Requested/Committed For The Proposal Study.Please Include Government,Private,International Any Other Source.
N/A
Funding Received So Far/Approved By Any Of The Government Agencies To The Company/Companies to Carry Out Any Other Activity During The Last Five Years(Give Details Like Project Title,Amount Received/Approved,Funding Agency And Status Of The Project.)

SN	Title of Research Project	Amount Received	Year	Funding Agency	Status of Project
1	The SaviourBag -Life saviour instrument	45,000	2018-19	Mumbai University	Completed
2	Audio Deblurring & Watermarking Using Singular Value Decomposition	30,000	2018-19	Mumbai University	Completed
3.	Development of methods for in-season monitoring of sugarcane crop in Peninsular India using Earth Observations for precision water and nitrogen management	25,00,000	2018-19	Department of Science and Technology â€“ RFBR Russian Federation for Basic Research	Ongoing
4	Mobile App for Farmers-Kisan Khazana	46,40,000	2016-18	Godavari Biorefinaries Ltd, Samirwadi Karnataka	Completed
5	A silicon photonics integrated circuit for wavelength division multiplexed passive optical network	15,00,000	2017-18	Science and Engineering Research Board, Department of Science and Technology, Government of India	Ongoing
6	Wireless Health Monitoring System using personal area network	25000	2016-17	Mumbai University	Completed
7	Tree Climbing coconut plucker	35000	2016-17	Mumbai University	Completed
8	Processing of infrared Thermal Images for early breast cancer disease detection using colour image analysis	30000	2016-17	Mumbai University	Completed
9	Developing a computer based information system to improve the diagnosis of blood	20000	2016-17	Mumbai University	Completed
10	Design and development of Rectangular slot and angular ring slot wearable broad band circularly polarized textile antenna for medical application	25000	2016-17	Mumbai University	Completed
11	A Computer Vision based Automatic Gate Control for Vehicle recognition	31000	2016-17	Mumbai University	Completed
12	Development of FPGA based controller area network sniffer for prosthetic limbs	25000	2016-17	Mumbai University	Completed
13	Antinutritive features of little known legume Dolichosbiflorous kulthi from drought prone areas of Maharashtra	20,000	2016-17	Mumbai University	Completed
14	Inclusion of Queer Gender in Indian Mainstream and Bridging Gap between Myth and Reality	20,000	2016-17	Mumbai University	Completed
15	Design and fabrication of walking assistance device for paralyzed patient	30,000	2016-17	Mumbai University	Completed
16	A Study of library branding through implementation of value added services for enhancing library usage	20,000	2016-17	Mumbai University	Completed
17	Voice Controlled Wheelchair using Android Mobile	35,000	2016-17	Mumbai University	Completed
18	IoT based Maximum Solar Power Point Tracking System For Greenhouse Application	25,000	2016-17	Mumbai University	Completed
19	To study the effect of A site doping on properties of Nanostructured Multiferroic Perovskite Manganities	48,000	2015-16	Mumbai University	Completed
20	Synthesis of Functionalized carbon from groundnut shell for removal of heavy metals from water	25,000	2015-16	Mumbai University	Completed
21	A study of the implication of Ethnicity in the work of Rohinton Mistry and Bapsidhwa	30,000	2015-16	Mumbai University	Completed
22	Brain tumor detection using artificial neural network	40,000	2015-16	Mumbai University	Completed
23	HPS and ultrasonic transceiver enabled device with heartrate monitor for sailor in marine environment	50,000	2015-16	Mumbai University	Completed
24	Performance measures, analysis and comparison of system level simulation based LTE and WiMAX 4G cellular technologies	25000	2014-15	Mumbai University	Completed

for Telecommunication systems.

25 Effective Path Planning for Multi Robot System 40000 2014-15 Mumbai University Completed
using Hovering Eye
26 Omnivision Quadcopter 40,000 2014-15 Mumbai University Completed
27 Hybrid Bike 40,000 2014-15 Mumbai University Completed
28 Text to Speech Conversion 40,000 2014-15 Mumbai University Completed
29 Analysis Design of Energy Efficient Routing algorithm 45,000 2014-15 Mumbai University Completed
for Wireless Sensor Networks

BUDGET DETAILS

Applicant Institute Budget Details

	Total Budget (Rs. In Lakhs)	Contribution By Applicant Institute (Rs. In Lakhs)	Support Requested Under BIRAC (Rs. In Lakhs)
NON-RECURRING	2.00	0.00	2.00
RECURRING	27.35	0.00	27.35
TOTAL	29.35	0.00	29.35

	GRANT-IN-AID	LOAN
	29.35	--NA--

Details Of The Proposed Budget

Name Of the Applicant Institute : K J Somaiya Institute of Engineering and Information Technology Sion, Mumbai

Non Recurring Cost(Rs. In Lakhs)

Equipment (A)	Accessories (B)	Total (A)	Contribution by company (Rs in. Lakhs)	Total Support requested from BIRAC (Rs in. Lakhs)
1.00	1.00	2.00	0.00	2.00

BIRAC contribution in the form of	Percentage	Amount (Rs in Lakhs)
Grant In Aid	100.00	2.00

Recurring Cost(Rs. In Lakhs)

Manpower (A)	Consumables (B)	Travel (C)	Contingency (D)	Outsourcing (E)	Total (A+B+C+D+E)	Contribution by company (Rs in. Lakhs)	Total Support requested from BIRAC (Rs in. Lakhs)
19.20	2.50	0.40	0.25	5.00	27.35	0.00	27.35

BIRAC contribution in the form of	Percentage	Amount (Rs in Lakhs)
Grant In Aid	100.00	27.35

Consolidated Budget		
		Rs. (in lakhs)
a	**TOTAL CONTRIBUTION BY APPLICANT**	0.00
b	**TOTAL SUPPORT REQUESTED UNDER BIRAC**	29.35
	(I) GRANTS-IN-AID	29.35
	(II) LOAN	-NA-
c	**TOTAL COST OF THE PROJECT**	**29.35**
d	**TOTAL COST OF THE PROJECT (IN WORDS):**	**Twenty-Nine Lakhs and Thirty-Five Thousands**