

File No. NRDMS/UG/NetworkingProject/e-13/2019(G) P-1

Government of India

Ministry of Science &amp; Technology

Department of Science &amp; Technology

NGP Division (earlier NRDMS)

Technology Bhavan,  
New Mehrauli Road,  
New Delhi-110016

Dated: 27.10.2020

ORDER

**Subject:** Project Proposal on "Development of Geo-Magnetism based Indoor Navigation system" by Dr. P S Kalyan Sasidhar, Dhirubhai Ambani Institute of Information and Communication Technology, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat-382007.

Sanction of the President is hereby accorded to the approval of Rs. 27,41,332/- (Twenty Seven Lakh Forty One Thousand Three Hundred Thirty Two only) for implementation of the project entitled "Development of Geo-Magnetism based Indoor Navigation system" by Dr. P S Kalyan Sasidhar, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat over a duration of 2 years. The detailed breakup of grant for General as well as Capital Components are Rs. 24,34,332/- and Rs.3,07,000/-, respectively. Following is the details of the project budget:

S.N.	Heads	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	Total
1	Salaries (JRF-2 @Rs. 31,000+24% HRA)*	9,22,560	9,22,560	18,45,120
2	Hardware and Software Workstation (Pg.no.6) . Desktop(Pg.no.7)	3,07,000		3,07,000
3	Travel	50,000	50,000	1,00,000
4	Consumables	70,000	70,000	1,40,000
5	Contingency	50,000	50,000	1,00,000
	<b>Sub Total</b>	<b>13,99,560</b>	<b>10,92,560</b>	<b>24,92,120</b>
	Overhead @ 10%	1,39,956	1,09,256	2,49,212
	<b>Total</b>	<b>15,39,516</b>	<b>12,01,816</b>	<b>27,41,332</b>

\* OM dated January Revised as per the DST 2019

2. The sanction of the President is also accorded to the release of Rs. 12,32,516/- (Rupees Twelve Lakh Thirty Two Thousand Five Hundred Sixteen only) to Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat as the first instalment of grant under "General Head" for implementation of the above mentioned project.

3. This sanction is subject to the condition that the grantee organisation will furnish to the Department of Science & Technology, Utilization Certificate (UC) in the Form prescribed as per GFR 2017 and audited statement of expenditure (SE) at the end of the project.

4. The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

*Sushma Pandey*  
Sushma Pandey  
Joint Secretary  
Ministry of Science & Technology  
Department of Science & Technology  
New Delhi-110016

5. For the above mentioned project, the work plan with milestones and partner responsible for achieving them shall be as below.

Task	Quarterly											
	I		II		III		IV		V		VI	
	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24
Methodology development	X											
Collect measurements from sensors on the mobile phone		X	X									
Strip Down algorithms to process sensor data		X	X									
Develop novel location tracking algorithm			X									
Small scale testing & validation of location estimation system				X								
Develop electromagnetic solvers	X	X	X									
Compare and Validate magnetic maps generated through solvers & data collected				X								
Develop Building information model (BIM) using solvers					X							
Identify & test appropriate routing Algorithm for navigation on BIM					X	X						
Develop Android application housing location and navigation system				X	X	X						
Test and validate Android application					X	X						
Integrate BIM with GIS as an extension									X	X		
Experimental protocol and design of the human studies										X		
Validate models via self-report survey											X	
Disseminate results and organize a workshop												X

6. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organization is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

7. The grant-in-aid being released is subject to the condition that

(a) A transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/Organisation under the appropriate rules

Dr. SHEELA PANDEY  
Principal Accounts Officer  
Department of Science & Technology  
Government of India  
New Delhi

of the grantee organisation while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organisation immediately on receipt of the grant:

(b) While submitting Utilisation Certificate/Statement of Expenditure, the organisation has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

8. As per the GFR 2017 Rule 230 (8) the grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., [www.Bharatkosh.gov.in](http://www.Bharatkosh.gov.in)), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts. GI should also follow Rule 230(17) of GFR-2017 concerning reservation of SC/ST/OBC, if applicable.

9. As per rule of GFR 2017, it is mandatory for the grantee organization to purchase the equipment through the Government e-marketplace (gem), to the extent availability there as the project involves Government funding.

10. Grantee organization is to adhere to the instructions of the Department of Expenditure guidelines for the travel budget head.

11. The continuation of the project beyond 31/03/2021 will be subject to appraisal and approval of the continuation of the Umbrella Scheme "Innovation, technology Development and Deployment" under which the Project is funded.

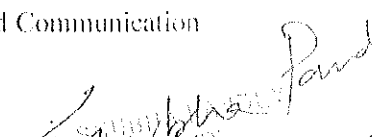
12. The expenditure involved is debitable to Demand No.87, Department of Science & Technology for the year 2020-21:

3425	:	Other Scientific Research (Major Head)
60	:	Others
60.200	:	Assistance to Other Scientific Bodies (Minor Head)
70	:	Innovation, Technology Development & Deployment
70.00.31	:	Grants-in-aid General for the year 2020-21 (Plan)
(Previous: TDP-NRDMS-3425.60.200.26.01.31)		

13. The amount of Rs. 12,32,516/- (Rupees Twelve Lakh Thirty Two Thousand Five Hundred Sixteen only) will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat. The bank details for electronic transfer of funds through RTGS are given below:-

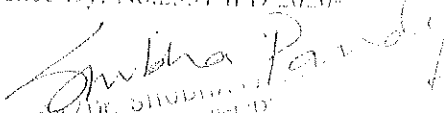
1. Name of the Account Holder: Dhirubhai Institute of Information and Communication Technology
2. Name of the Bank: Bank of Baroda, Infocity Gen Next Branch, Ground Floor Infocity Hub Tower-II, Gandhinagar, Gujarat.
3. Bank Account Number : 30390100010263
4. IFSC Code : BARB0INFOCI
5. MICR Code : 380012040

14. The NGO DARPAN ID for Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat is: GJ/2018/0194461.

  
Shri. Dhirubhai Ambani  
Chairman, Board of Directors  
Dhirubhai Institute of Information and Communication Technology  
Gandhinagar, Gandhinagar, Gandhinagar, Gandhinagar  
Gandhinagar, Gandhinagar, Gandhinagar, Gandhinagar

15. As per Rule 234 of GFR 2017, this sanction has been entered at S. No. 92 in the register of grants maintained in the Division for the scheme (NGP Programme).

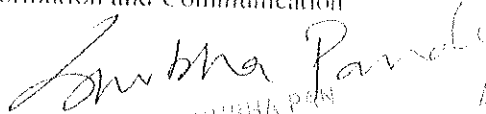
16. This issues with the concurrence of IFD Vide their Concurrence Dy. No.2331 IFD 2020-21 dated the 09.10.2020.

  
(Dr. SHUBHA PANDEY)  
Scientist "D" NGP Division

To  
PAO, DST, New Delhi

Copy for information and necessary action to:-

1. Director of Audit (CW & M-II), Indraprastha Estate, AGCR Building, New Delhi
2. Copy with a spare copy of the sanction to the Drawing and Disbursing Officer, DST, Cash Section for making necessary payment.
3. IFD Division, DST, New Delhi.
4. Accounts Section, DST, New Delhi.
5. Sanction Folder.
6. Dr. P S Kalyan Sasidhar, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat-382007.
7. The Head, NGP Division, DST, New Delhi.

  
(Dr. SHUBHA PANDEY)  
Scientist "D" NGP Division  
DEPT. OF SCIENCE & TECH.  
HRA, GOVT. OF INDIA

File No. NRDMS/UG/NetworkingProject/c-13/2019(C) P-1

Government of India  
Ministry of Science & Technology  
Department of Science & Technology  
NGP Division (earlier INRDMS)

Technology Bhavan,  
New Mehrauli Road,  
New Delhi-110016  
Dated: 27.10.2020

**ORDER**

**Subject:** Project Proposal on "Development of geo-magnetism based indoor navigation system" by Dr. P S Kalyan Sasidhar, Dhirubhai Ambani Institute of Information and Communication Technology, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat-382007.

Sanction of the President is hereby accorded to the approval of Rs. 27,41,332/- (Twenty Seven Lakh Forty One Thousand Three Hundred Thirty Two only) for implementation of the project entitled "Development of Geo-Magnetism based Indoor Navigation system" by Dr. P S Kalyan Sasidhar, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat over a duration of 2 years. The detailed breakup of grant for General as well as Capital Components are Rs. 24,34,332/- and Rs.3,07,000/-, respectively. Following is the details of the project budget:

S.N.	Heads	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	Total
1	Salaries (JRF-2 @Rs. 31,000+24% HRA)*	9,22,560	9,22,560	18,45,120
2	Hardware and Software Workstation (Pg.no.6), Desktop(Pg.no.7)	3,07,000		3,07,000
3	Travel	50,000	50,000	1,00,000
4	Consumables	70,000	70,000	1,40,000
5	Contingency	50,000	50,000	1,00,000
	<b>Sub Total</b>	<b>13,99,560</b>	<b>10,92,560</b>	<b>24,92,120</b>
	Overhead @ 10%	1,39,956	1,09,256	2,49,212
	<b>Total</b>	<b>15,39,516</b>	<b>12,01,816</b>	<b>27,41,332</b>

\* OM dated January Revised as per the DST 2019

- The sanction of the President is also accorded to the release of Rs.3,07,000/- (Rupees Three Lakh Seven Thousand only) to Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat being the first instalment of grant under "Capital Components" for implementation of the above mentioned project.
- This sanction is subject to the condition that the grantee organisation will furnish to the Department of Science & Technology, Utilization Certificate (UC) in the Performa prescribed as per GFR 2017 and audited statement of expenditure (SE) at the end of the project.
- The grantee organization will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

*[Signature]*  
DEPT. OF SCIENCE & TECHNOLOGY  
NGP DIVISION / Gandhinagar  
New Delhi-110016

5. For the above mentioned project, the work plan with milestones and partner responsible for achieving them shall be as below.

Task	Quarterly											
	I		II		III		IV		V		VI	
	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24
Methodology development	X											
Collect measurements from sensors on the mobile phone		X	X									
Strap Down algorithms to process Sensor data		X	X									
Develop novel location tracking algorithm			X									
Small scale testing & validation of Location estimation system				X								
Develop electromagnetic solvers	X	X	X									
Compare and Validate magnetic maps generated through solvers & data collected				X								
Develop Building information model (BIM) using solvers					X							
Identify & test appropriate routing Algorithm for navigation on BIM					X	X						
Develop Android application housing location and navigation system				X	X	X						
Test and validate Android application					X	X						
Integrate BIM with GIS as an extension								X	X			
Experimental protocol and design of the human studies									X			
Validate models via self-report survey										X		
Disseminate results and organize a workshop												X

6. The account of the grantee organization shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Officer of the DST), whenever the organization is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

For and on behalf of the Principal Accounts Officer,  
 DEPT. OF SCIENCE & TECHNOLOGY  
 Govt. of India

7. The grant-in-aid being released is subject to the condition that

(a) A transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/Organisation under the appropriate rules of the grantee organisation while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organisation immediately on receipt of the grant;

(b) While submitting Utilisation Certificate/Statement of Expenditure, the organisation has to ensure submission of supporting documentary evidences with regard to purchase of equipment/capital assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

8. As per the GFR 2017 Rule 230 (8) the grantee organization will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing bank account. For Grants released during F.Y. 2017-18 and onwards, all interests and other earnings, against released Grant shall be remitted to Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e., [www.Bharatkosh.gov.in](http://www.Bharatkosh.gov.in)), immediately after finalization of accounts, as it shall not be adjusted towards future release of grant. A certificate to this effect shall have to be submitted along with Statement of Expenditure/Utilization Certificate for considering subsequent release of grant/closure of project accounts. GI should also follow Rule 230(17) of GFR-2017 concerning reservation of SC/ST/OBC, if applicable.

9. As per rule of GFR 2017, it is mandatory for the grantee organization to purchase the equipment through the Government e-marketplace (gem), to the extent availability there as the project involves Government funding.

10. Grantee organization is to adhere to the instructions of the Department of Expenditure guidelines for the travel budget head.

11. The continuation of the project beyond 31/03/2021 will be subject to appraisal and approval of the continuation of the Umbrella Scheme "Innovation, technology Development and Deployment" under which the Project is funded.

12. In respect of grant-in-aid sanctioned for procurement of capital assets, PIs will ensure that procurement process are completed within the same financial year as specified in the sanction, provided that the grant is released at least 8 months prior to the close of financial year. Carry forward of such capital grant will be permitted only for immediate succeeding financial year with the concurrence of the grant giving Division, if circumstances warrant. Further, no extinction/carry forward will be permitted and sanction for such capital grant will automatically stands withdrawn. Only in exceptional cases, such carry forward of capital grants of the project shall be considered beyond 2<sup>nd</sup> financial year with the approval of Secretary, DST through JS&FA.

13. The expenditure involved is debit to Demand No.87, Department of Science & Technology for the year 2020-21:

3425	:	Other Scientific Research (Major Head)
60	:	Others
60.200	:	Assistance to Other Scientific Bodies (Minor Head)
70	:	Innovation, Technology Development & Deployment
70.00.35	:	Grants-in-aid for the year 2020-21 (Plan Expenditure-Capital Assets)
		(Previous: TDP-NRDMS-3425.60.200.26.01.35)

*Signature*  
SECRETARY  
DEPT. OF SCIENCE & TECHNOLOGY  
GOVT. OF INDIA  
New Delhi-110002

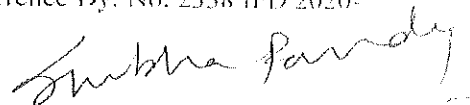
14. The amount of Rs.3,07,000/- (Rupees Three Lakh Seven Thousand only) will be drawn by the Drawing and Disbursing Officer, DST and will be disbursed to Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat. The bank details for electronic transfer of funds through RTGS are given below:-

1. Name of the Account Holder: Dhirubhai Institute of Information and Communication Technology
2. Name of the Bank: Bank of Baroda, Infocity Gen Next Branch, Ground Floor Infocity Hub Tower-II, Gandhinagar, Gujarat.
3. Bank Account Number : 30390100010263
4. FSC Code : BARB0INFOC1
5. MICR Code : 380012040

15. The NGO DARPAN ID for Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat is: GJ/2018/0194461.

16. As per Rule 234 of GFR 2017, this sanction has been entered at S. No. 95/21 in the register of grants maintained in the Division for the scheme (NGP Programme).

16. This issues with the concurrence of IFD Vide their Concurrence Dy. No. 2338 IFD 2020-21 dated the 09.10.2020.

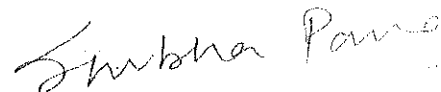


(Dr. SHUBHA PANDEY)  
Scientist "D"/NGP Division  
DEPT. OF SCIENCE & TECHNOLOGY  
GOVT. OF INDIA  
New Delhi

To  
PAO, DST, New Delhi

Copy for information and necessary action to:-

1. Director of Audit (CW & M-II), Indraprastha Estate, AGCR Building, New Delhi
2. Copy with a spare copy of the sanction to the Drawing and Disbursing Officer, DST, Cash Section for making necessary payment.
3. IF Division, DST, New Delhi.
4. Accounts Section, DST, New Delhi.
5. Sanction Folder.
6. Dr. P S Kalyan Sasidhar, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat-382007.
7. The Head, NGP Division, DST, New Delhi.



(Dr. SHUBHA PANDEY)  
Scientist "D"/NGP Division  
DEPT. OF SCIENCE & TECHNOLOGY  
GOVT. OF INDIA  
New Delhi