

**University Grants Commission of Bangladesh  
Higher Education Quality Enhancement Project  
Academic Innovation Fund  
Six Monthly Sub-project Monitoring Format (Updated)**

Reporting period: July-December, 2014

**01. Name and Details of the Sub-Project**

Name of the sub-project	Capacity Building for Postgraduate Research in Remote Health Monitoring in Bangladesh
Sub-Project Number (CP Number):	CP-3137
Name of the Sub-project Manager with position in the entity	Dr. A.K.M. Ashikur Rahman Professor Dept. of Computer Science & Engineering, BUET
Implementing Unit [Department/ Faculty/Center/Institute/University]	Deptment of Computer Science & Engineering
Name of University	Bangladesh University of Engineering and Technology. (BUET)
Collaboration with other institutions/ agencies: N/A	Please Mention the Name of Partner University or institutions: N/A
Inception Date: 1/07/2014	Completion Date: Original: 30/9/2017 Revised (if): 30/6/2017

**02. Name and Details of Internal/provisional staff/consultants included/hired in the Subproject Management Unit**

Nº of Internal Staff*	Nº of Students (if any)	Nº of Consultants***	Full Time (how many out of total staff)	Part time (how many out of total staff)	Nº of Provisional Staff**
5	4	0	0	5	4
Name of Internal Staff	Designation (In the Entity)	Hiring Date (In the sub-project)	Type of Contract (Lump sum=1; Daily Basis= 2; Monthly=3; Others)	Duration (Months)	Expected Total Cost (Lakh taka)
Dr. A.K.M. Ashikur Rahman	SPM	1 /07/2014	Other (Basic Salary in Quarterly Basis)	36	4.32
Dr. Md. Yusuf Sarwar Uddin	DSPM	1 /07/2014	Other (Basic Salary in Half Yearly Basis)	36	2.04
Dr. S. M. Farhad	ASPM	1 /07/2014	Other (Basic Salary in Yearly Basis)	36	1.02
Fatema Tuz Zohora	ASPM	1 /07/2014	Other (Basic Salary in Yearly Basis)	36	1.02
Rifat Shahriyar	ASPM	22 /10/2014	Other (Basic Salary in Yearly Basis)	36	1.02
Name of Provisional Staff	Designation	Hiring Date	Type of Contract	Duration (Months)	Expected Cost (Lakh Taka)
Asia Akter	Office Secretary/Manager	03/08/2014	3	36	7.92
Rezaur Rahaman	Accountant Officer	03/08/2014	3	36	3.96
Md. Wazed Ali	Data Entry/Computer Operator	03/08/2014	3	36	4.74
Md. Rezaul Karim Alam	MLSS	03/08/2014	3	36	3.12

\*Academics engaged in sub-project management and included in SPMT

\*\* Support staff recruited temporarily to provide secretarial service to sub-project management e.g., accountant, office secretary, data-entry operator, MLSS etc.

\*\*\* Experts appointed following relevant provisions of PPR 2008 or WB Guidelines

### **03. Summary of the Activities of the sub-project [According to the proposal]**

#### **1. Conducting post graduate research leading to M.Sc./ Ph.D. degree:**

To conduct post-graduate research on application of information and communication technology in health sector, and thus innovating novel techniques for health information systems, such as health and health, that are particularly suitable in the context of Bangladesh.

#### **2. Enhancing post graduate research capability:**

To strength research capabilities in the form of M.Sc./Ph.D. enrollments in the areas of health informatics, embedded systems and mobile computing through research, prototype building, and academic training and collaboration home and abroad.

#### **3. Arranging regular seminars, symposiums, and workshops:**

Four workshops, namely workshops on vital signals, mobile application for healthcare, health informatics, and security and privacy of health data, are proposed throughout the span of the project. A couple of seminars/talks would also be arranged.

#### **4. Enhancing postgraduate research laboratory:**

We intend to enhance the wireless networking laboratory with the state-of-the-art equipment needed for remote health monitoring of patients.

#### **5. Enhancing research collaboration in the department:**

Arranging research visits for Ph.D. students and faculty members at the foreign university laboratories, arranging academic visits of the permanent faculty members to foreign universities. Inviting visiting professors for three months research visits, and academic training of the faculty members.

#### **04. Description of the Progress so far and in the past six-months according to Work/Activity plan**

##### **Progress during the past six months:**

##### **1. Office Establishment:**

The project office has been established and all required officers and staffs have been recruited.

##### **2. Recruitment of M.Sc. Students:**

At first, we made a call for application for providing financial support to M.Sc. and Ph.D students. All submitted applications were reviewed by the SPMT and four M.Sc. students were finally selected for financial support under this project. All four candidates have joined as a project team member since December 1st.

##### **3. Tender document preparation:**

We have already prepared our first tender document for package G6 (Supply & installation of laptop, printer and photocopier) and already our requisition have been sent to HEQEP. We have also completed our tender specification preparation for package G3 (Supply & installation of smart phones, video camera and networking accessories) and our first RFQ preparation i.e. package G1 (Supply & installation of OMR, Barcode reader and barcode printer) is going on.

##### **4. Research stay of SPMT member:**

Research stays of SPMT member enhances the research skills of the faculty members of the CSE department and encourages their research in the proposed field of study. As our proposed project is highly research focused, this definitely strengthens research activity in the department. Our ASPM Dr. Md. Yusuf Sarwar Uddin is now on collaboration research stay at the University of California, Irvine. He is working on the integration of heterogeneous devices (in situ and mobile sensors, mobile platforms) and networks to enable reliable and efficient execution of distributed applications.

##### **Overall progress so far:**

- The project office establishment and recruitment of all office staffs have been successfully completed.
- To provide financial support and research training of M.Sc. and Ph.D. students at the department of CSE, BUET we have already selects four M.Sc. students under this project and now they are conducting their research in remote health monitoring in Bangladesh. Although the Ph.D student recruitment process is not complete yet.
- Three faculty members, including SPM and two ASPM have attended in PPR and e-GP training that was arranged by HEQEP.
- We have already prepared our first tender document for package G6 (Supply & installation of laptop, printer and photocopier) and already our requisition has been sent to HEQEP.

- Now we are preparing our tender documents, tender specification and formatting our TSC (Techniquial Sub Committee) for the package G1 (Supply & installation of OMR, Barcode reader and barcode printer), G3 (Supply & installation of smart phones, video camera and networking accessories)
- On a research visit, ASPM Dr. Md. Yusuf Sarwar Uddin is now in Dept of computer science at the University of California, Irvine & working on the integration of heterogeneous devices (in situ and mobile sensors, mobile platforms) and networks to enable reliable and efficient execution of distributed applications.

## **05. Activities planned in coming six-month period according to Work/Activity plan**

### **1. Acquisition of Equipments.**

To improve the wireless networking laboratory at the department of CSE, BUET, with state-of-the-art health monitoring wireless equipment to conduct innovative postgraduate research and create intellectual properties as needed and it includes

- a. Preparation of bid documents for package G1 (Supply & installation of OMR, Barcode reader and barcode printer), G3 (Supply & installation of smart phones, video camera and networking accessories), G4 (Supply & installation of laboratory equipments package 1), G6 (Supply & installation of laptop, printer and photocopier).
- b. Invitation to tenders
- c. Tender evaluation
- d. Vendor selection
- e. Purchasing new equipment
- f. Installation, testing and commissioning of the equipment

### **2. Research stay in foreign universities of Ph.D. Candidates.**

The PhD and M.Sc students will be benefitted and their degree will be enriched through research stays and collaboration. In particular, the financial support to collaborate nationally and internationally for the students will enhance their research ability at this level. In particular, the financial support to collaborate nationally and internationally for the students will enhance their research ability at this level.

### **3. Participation in customized training courses on foreign countries by the academic faculties.**

Enhancing the research capacity of the faculty members through training in the courses needed for building ICT interfaces, instrumentation and infrastructure for remote health monitoring. As the project requires domain specific knowledge in health sector and sensing devices, the projected training courses on foreign countries by the academic faculties will greatly help the involved faculties to increase their skill and knowledge frontier.

### **4. Selection and Invitation of Visiting Professor.**

To award fellowship to visiting professor in order to enhance research collaboration in the proposed field of research study.

**5. Selection and Invitation of Medical Consultant.**

Our project prototype can be used to connect reputed and experienced doctors from national and international level to investigate and research special diseases. Famous doctors in urban areas can play great role to alleviate the health care system by contributing in the treatment of neglected people across the country

**6. Arranging regular seminars, symposiums, and workshops:**

We expect a wide dissemination of research findings to the communities and an exchange of views and ideas with the people coming from both academia and industry. A couple of seminars/talks & four workshops, namely workshops on vital signals, mobile application for healthcare, health informatics, and security and privacy of health data are proposed throughout the span of the project. we hope among them one workshop and one seminar will be held within next six month, which include:

- a. Forming organizing committees
- b. Call for paper
- c. Paper submissions and reviewing
- d. Selecting papers for presentation
- e. Registration
- f. Organizing the main event

**7. Academic visit.**

Enhancing research with the academic visits at the foreign university laboratories.

**06. Description of implementation issues/impediments/Challenges [Issues that may hamper implementation] and proposed remedial actions**

1. **e-GP:** In order to successfully conduct the proposed research, a number of equipments/machineries are required. However, the overall procurement process of such equipments was completely stalled because there was a central decision that all subprojects from BUET have to complete all procurement processes through recently government-introduced e-GP system. Hence no procurements could be made until the required training of online e-GP system was completed at the first week of December.

Remediation: Extending project completion time.

**Update on Milestone status**

Milestone	Expectation (%) till date (31.12.2014)	Progress till (%) date (31.12.2014)	Revised Expected Date	Comment/Justification
1. Enhancing post graduate research capability	15%	15%	Achieved	-
2. Enhancing postgraduate research laboratory	33%	0%	30/6/2015	Delayed due to e-GP
3. Organizing fellowship to a visiting professor	0%	0%	N/A	N/A
4. Enhancing research capacity of faculty members	0%	0%	N/A	N/A
5. Enhancing the research collaboration of faculty members	0%	50%	N/A	Achieved before expected date
6. Arranging workshops	7%	0%	30/6/2015	Our proposed project is highly research focused, as no research was not completed yet, so arranging workshops was not possible.

Note: Copy Milestones from respective SPM's Table 1 of Final CP.

**07. Update on Performance Indicators to Evaluate Sub-project Impact**

Indicators	Calculation method	verification methods	Calculation of Base Value	Baseline Value in Year 2014	Desired Standard (%) on Terminal Year 2017	Present Value (%) as on (31.12.2014)
1. Increase in post-graduate research in the proposed field	Number of newly approved new researches undertaken with this sub-project's funding.	Thesis registration and/or completion document of post graduate program	N/A	Nil	6	0

2. Improvement of students' research capacity in the proposed field	Number of publications by students in national and international refereed journals/conferences/workshop;	Published refereed journals/conferences/workshop	N/A	Nil	6	2
3. Improvement of faculty staffs' research capacity in the proposed field	Number of publications by faculty staffs in national and international refereed journals/conferences/workshop;	Published refereed journals/conferences/workshop	N/A	Nil	6	2
4. Improvement of research collaboration in the proposed field	Number of collaborative research stays in foreign universities;	Research visit and collaboration document; travel document;	N/A	Nil	5	1
5. Enhancement of IT equipment in Wireless Laboratory	Number of new machines/ Total number of machines	Official non-objection records	Total number of machines = number of new machines + number of existing machines	Nil	0.727	0
6. Enhancement of laboratory equipment in Wireless Laboratory	Number of new equipment/ Total number of equipment	Official non-objection records	Total number of equipment = number of new equipment + number of existing	Nil	0.600	0

			equipment			
7. Improvement in disseminating research findings in the proposed area	Number of workshops arranged	Official records	events	N/A	Nil	4 0

Note: Copy 1<sup>st</sup> 6 Columns from respective SPM's Table 2 of Final CP.

## 8. Fund utilization

Description	Amount
Total Budget of the Sub-Project (Tk. In million)	349.97
Total Revised Budget of the Sub-Project (Tk. In million)	N/A
Fund Received up to December 31, 2014 (Tk. In million).	120.00
Fund Utilized (Tk. In million)	8.721
Percentage (%) of received fund against total budget of the sub-project	34.28%
Percentage (%) of utilized fund against total budget of the sub-project	2.49 %

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### Acquisition of Equipment/ Materials : N/A

Sl. No.	Equipment/ Materials	Quantity/Unit
1)	Multimedia projector	-
2)	Laptop	-
3)	Desktop	-
4)	Printer	-
5)	Scanner	-
6)	Photocopier	-
7)	Fax/telephone	-
8)	White board	-
9)	Electronic/Smart/Digital Board	-
10)	Multimedia Screen	-
11)	Books	5
12)	Journals	-
13)	Number of Air Coolers	-
14)	Number of Furniture & fixture	-
15)	Other items: ( )	-

**10. Acquisition of Scientific Equipment/ Chemicals/Reagent etc.: N/A**

Sl. No.	Name of Equipment	Quantity
1) 1	SENSOR OPTO TRANS	10
2) 2	IC OPAMP GP	25
3) 3	-	-
4) 4	-	-
5) 5	-	-
6) 6	-	-
7) 7	-	-

**11. Capacity Building and Experience Sharing Programs (Workshop/ Seminar /Training/Conferences) Organized by the sub-project for Faculties, Students or External stakeholders:**

Event	Title	Target Groups	Number of Participants	National/International
Training:	-	-	-	-
Workshop:	-	-	-	-
Conference:	-	-	-	-
Seminar:	-	-	-	-
Collaborative Research	The direction on mobile health care and safety services using ubiquitous computing technologies.	Faculty member	1	International (Distributed system Middleware lab at the University of California, Irvine)
Study tour	-	-	-	-
Others (if any)	-	-	-	-

**\*\* target groups may be faculty member, students, university staff, field workers, practitioners, etc.:**

**12. Activities for undertaking Curriculum development (if any): N/A**

Event	Title	Number of Participants	National/International
Workshop	-	-	-
Seminar	-	-	-

Training	-	-	-
Pair Review	-	-	-
Study tour	-	-	-
Others (if any)	-	-	-

**13. External Training/ Workshop Attended by SPM Team**

Name of Training/ Workshop	Participants Name	In-country/ Overseas
PPR	1. Dr. A.K.M. Ashikur Rahman (SPM) 2. Dr. Md. Yusuf Sarwar Uddin (DSPM)	In-country
e-GP	1. Dr. A.K.M. Ashikur Rahman (SPM) 2. Dr. S. M. Farhad (ASPM)	In-country

**14. Post graduate enrolment in the Department under the sub-project**

Sl. No.	Name of Degrees	Current Registered Number
1)	MS enrolment	4
2)	M.Phil. enrolment	-
3)	Ph.D. enrolment	-
4)	Others (if any)	-

**15. Result (Output) Achieved of the Sub-project : N/A**

	Categories of Result (Output)	Number(& Name)
1)	Refurbished/ Renovated class room	-
2)	Virtual Class room	-
3)	Language lab/Club	-
4)	Refurbished/ Renovated Seminar Room	-

5)	Refurbished/ Renovated Conference Hall	-
6)	Refurbished/ Renovated Laboratory	-
7)	Refurbished/ Renovated Field Laboratory	-
8)	Established/ Renovated Computer Lab	-
9)	Curricula/Syllabus Updated	-
10)	Office automation	-
11)	Digital Library	-
12)	Campus Network/ ICT Network	-
13)	Academic Assessment (Self-Assessment) of department/institute/faculty	-
14)	Digital Archive of Research Program	-
15)	Other Achievements (If any)	-

**16. Research outcome (Journal, Publication, Articles etc.) related to the sub-project since its inception. Please also provide the full list of journals published in the past six months:**

Name of Research outcome (Journal, Publication, Articles etc.)	Number
Journal publication (domestic journal)	-
Journal publication (international journal)	-
Conference proceedings	2
Master's thesis accepted	-
PhD dissertations accepted	-

**Details of journal publications: N/A**

Full reference (author, title, journal, date of publication)	Academic field
-	-

**17. Name and URL of Developed Website: N/A**

**Name:** N/A

**URL:** <http://> N/A

**18. Other Noteworthy Achievements : N/A**

**19. Number of Direct Beneficiaries of the sub-project**

	Number	Remarks
Students (Undergraduate)	3	-
Students & Researchers (Post-graduate, Post-doctoral)	4	-

Faculty members	5	-
Other University staff	-	-
Other stakeholders : ( )	-	-

\* Please count only the benefits that have already been realized (not the expected beneficiaries)

\*\*Please do not double-count the beneficiaries. For example, if 1 person attended 2 workshops, beneficiary is still 1 person.

## 20. Comments

Our ASPM Dr. Md. Yusuf Sarwar Uddin is now on research visit in Distributed System Middleware lab, Dept of computer science at the University of California, Irvine. He is working with Prof. Dr Nalini Venkatasubramanian on the integration of heterogeneous devices (in situ and mobile sensors, mobile platforms) and networks to enable reliable and efficient execution of distributed applications. He will join with us within this January, and we hope this research stay will be very effective for our M.Sc and PhD students to learn more.

We have already prepared our first tender document for package G6 (Supply & installation of laptop, printer and photocopier) and submitted to HQEQP for central procurement. Three faculty members, including SPM and two ASPM have attended in two training i.e. PPR and e-GP training arranged by HEQEP. Now we are preparing our tender documents, tender specification and formatting our TSC (Technical Sub Committee) for the package G1 (Supply & installation of OMR, Barcode reader and barcode printer), G3 (Supply & installation of smart phones, video camera and networking accessories) with the help of P&D and according to PPA, 2006.

Our students already submitted two conference papers on remote health monitoring, which will be presented on 5th January on the 1st International Conference on Networking Systems and Security 2015 (NSysS 2015).

We have already selected four M.Sc students for Financial Support & Allowances under Economic Code - 4829 and now they have conducting research in remote health monitoring in Bangladesh.

## 21. Declaration

Signature: .....

Name of Sub Project Manager : Prof. Dr.A.K.M. Ashikur Rahaman

Name of the Sub-Project : Capacity Building for Postgraduate Research in Remote

Health Monitoring in Bangladesh

Name of Entity/University: Bangladesh University of Engineering and Technology (BUET)

Date : 05/01/2015