A Student Centric Approach for Mobile Learning Video Content Development and Instruction Design

Kumar Mandula*, Srinivasa Rao Meda**, Muralidharan V*, Ramu Parupalli* 

*Centre for Development of Advanced Computing, Department of Electronics & IT, India
**Jawaharlal Nehru Technological University Hyderabad(JNTUH), India

mkumar@cdac.in, srmeda@gmail.com, muraliv@cdac.in, ramup@cdac.in

Abstract— With the recent advancement in mobile computing technologies, there has been a paradigm shift from electronic learning(e-learning) to distance learning(d-learning) to mobile learning(m-learning). M-learning not only provides educational opportunities through handheld devices, but also facilitates just in time information required at the right time and right place. Though m-learning provides mobility and instant access to education, there are some implementation challenges and issues like limited processing capability and small screen display that needs researchers attention. Keeping in view the latest trends in Information, Electronics and Communication Technologies(IECT) and the increased usage of mobile phones in India, this paper discusses mobile learning technologies, opportunities and challenges for successful implementation of m-learning. It is observed that most of the students in India use low cost mobile phones that too with different hardware capabilities and features. Researchers and developers in education domain should consider these mobile capabilities and challenges before developing m-learning video content. Pilot experiment was conducted to study different mobile video presentation styles, file formats and their playback capabilities using students mobile phones. Students from various finishing schools were involved in carrying out this experiment. Based on pilot results, instructional design strategy and mobile video content development guidelines were formulated catering to the requirements of student community in India.

Keywords—Instruction Design, Mobile Learning, Mobile Video, Ubiquitous Learning, Video Content

Kumar Mandula became member of IEEE in 2012. He was born in Hyderabad in the year 1980. He received his Master of Engineering and Bachelor of Engineering degrees in Electronics and Communication Engineering with Systems and Signal Processing Specialization from University College of Engineering (Autonomous), Osmania University, Andhra Pradesh, India in 2005 and 2002 respectively. Also, he is pursuing his Phd in the area of “Ubiquitous Computing for Education” from Faculty of Electronics and Communication Engineering, Jawaharlal Nehru Technological University Hyderabad (JNTUH), Hyderabad, India.

He worked as a PROJECT ENGINEER under “National RFID Programme” at C-DAC, Noida and successfully implemented “RFID based Parcel Tracking System” project for Department of Post between NewDelhi and Mumbai during 2006 and 2008. He is associated with “National Ubiquitous Computing Research Centre” at C-DAC, Hyderabad since 2008 and is instrumental in carrying out research in “Ubiquitous Learning” domain. Currently, he is working as SENIOR TECHNICAL OFFICER at C-DAC Hyderabad. He co-authored nine research publications at national and international levels. His area of interests include RFID, context aware computing, mobile video streaming, accessible & adaptive e-learning and ubiquitous learning technologies.

Mr. Mandula received “Best Performer of the Year” award in 2011 and “Best Paper Award” in 2012 during IEEE International Conference on Technology Enhanced Learning(ITCCEE-2012), India.

Sreenivasa Rao Meda is a member of IEEE and holds a Phd from University of Hyderabad, India. He received double MTechs in Instrumentation & Control Systems & Computer Science Engineering.

He is a PROFESSOR of Computer Science Engineering and DIRECTOR for School of Information Technology(SIT), Jawaharlal Nehru Technological University Hyderabad(JNTUH), India. Earlier, he worked as the DEAN for MSIT Program run by CIHL (Consortium of Institutions of Higher Learning). He worked on various Industrial & Academic projects. He has over all 29yrs of Teaching Experience and his areas of interest includes Web Technologies, Artificial Neural Networks and Software Testing Tools. He has published several articles & publications in various national & international conferences.

Muralidharan V was born in the year 1954. He holds Master's degree in Applied Electronics and Bachelor's degree in Electronics and Communication Engineering from PSG technology Coimbatore and ACCET, Karaikudi India respectively.

He worked as Research Associate at School Automation, Indian Institute of Science, Bangalore between 1978 – 1980. He is working with ER&DC, a Society under Department of Electronics and Information Technology, Ministry of Communication and Information Technology which merged with Centre for Development of Advanced Computing(C-DAC) in the year 2002. Currently, he is working as the DIRECTOR for Centre for Development of Advanced Computing, Hyderabad centre. He worked on implementation of Energy Management System for Bhilai Steel Plant, design and setup of ATM network concept lab, design and implementation of backbone for ERDC network, design and implementation of ATM based plant wide networking for Bhilai Steel Plant, implementation of Power Consumption Monitoring System for Bhilai Steel Plant,
SCADA system implementation for TCFHP Power station at Siliguri for WBSEB. Also, he implemented the data centre and state wide network for Kerala State under KSWAN project for the Kerala, India. He guided more than 50 B.Tech and M.Tech projects, has more than 25 National, International papers and has two patents.

Ramu Parupalli graduated in Computer Science Engineering from Jawaharlal Nehru Technological University Hyderabad (JNTUH), India in 2006 and also pursuing his Masters from JNTUH. He is currently working as TECHNICAL OFFICER with Centre for Development of Advanced Computing, Hyderabad, Government of India since 2007. His areas of interest include scripting languages, web technologies, Speech recognition, Ubiquitous Computing, etc. He has co-authored ten papers in international & national conferences and journals.