



ULLOR DIGITAL ARCHIVES

A Project Report by
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ULLOOR DIGITAL ARCHIVES

PROJECT REPORT

Version 2.5

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February 2007

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Project Report on Establishment of
ULLOOR DIGITAL ARCHIVES
at Mahakavi Ulloor Memorial Library and Research Institute
(UMRI)

EXECUTIVE SUMMARY

A Project proposal on establishing Ulloor Digital Archives at Mahakavi Ulloor Memorial Library and Research Institute (UMRI), Jagathi, Trivandrum named after the scholar who dominated the literary and cultural life of Kerala for nearly half a century. The major objective of the project will be to use ICT to conserve the manuscripts and heritage items related to Mahakavi Ulloor S. Parameswara Iyer and make them accessible to the people. The personal collection of rare books, journals and manuscripts which formed the main source of research for works like his magnum opus the monumental history of Malayalam literature (Malayala Sahithya Charitram), compared to the Cambridge History of English Literature are presently maintained by the institute. This will form the base of the Digital Archives to be developed. The Institute will publish in electronic form selected rare books and journals available in the institute as part of the project. Digital Audio of the recitations of his poems will also be published and made available to the public. Through this programme the Institute will be able to bring into focus in the hearts of the people the life and work of the scholar saint who has devoted himself to Malayalam language and literature. The goal of the Digital Archiving Program is to offer broad public access to the complete works of Mahakavi Ulloor and a wide range of rare and antique literary historical and cultural documents that came from his personal collection; as a contribution to education and research.

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A Project proposal on establishing Ulloor Digital Archives at Mahakavi Ulloor Memorial Library and Research Institute (UMRI), Jagathi, Trivandrum with the objective to conserve the manuscripts and heritage items related to Mahakavi Ulloor S. Parameswara Iyer, as well as the personal collection of Ulloor and other rare and antique documents available at the UMRI and make them accessible to the people. Along with this documentation and conservation activities related to the collection at UMRI like cataloguing, listing, preservation technology etc will be undertaken. Facilities for using the resources at UMRI will also be improved as part of the development of the digital archives.

The Digital Archives/Library resulting from the project will have the following content/facilities.

- ? computerized Catalogue of complete collection of the UMRI.
- ? Database of works of Ulloor with detailed notes and bibliographical description of different editions of his works and works on Ulloor with a search mechanism using Malayalam script
- ? Digital Archive of original manuscripts, diaries and letters of Ulloor
- ? Database of the personal collection of Ulloor and other rare and antique books and journals held by UMRI
- ? Digital Library of complete works of Ulloor with images of the complete pages of their first editions.
- ? Digital audio, video etc of poems of Ulloor and other related items.

The project will apply Information and Communication Technology (ICT) and the web to materialize the above objectives and bring into focus in the hearts of the people the work of the scholar saint who devoted his life to Malayalam language and literature.



1. Introduction

Mahakavi Ulloor Memorial Library and Research Institute (UMRI) named after the great son of Kerala Ulloor S. Parmeswara Iyer was established to further the cause for which the Mahakavi Ulloor has devoted his life.

Ulloor S. Parmeswara Iyer was born on 6 June 1877 at Changanacherry in Kerala. His father, Subramonia Iyer was then a Malayalam teacher in the local school. His ancestral home was at Ulloor, a northern suburb of the city of Trivandrum. The poet is known in Kerala by the familiar diminutive 'Ulloor'. His father's premature death dimmed his prospects for higher education. However, his mother's perseverance led him to join the Maharaja's College at Trivandrum, wherefrom he graduated in 1897 with Honors in Philosophy. Thereafter he entered the Services of the Travancore State. While in service, he studied and took a degree in Law as well as Master's Degree in Malayalam and Tamil. He rose to the high office of Land Revenue and Income Tax Commissioner and also officiated as Chief Secretary of the State. Ulloor's abiding fame and imposing contributions are as a versatile and gifted man of letters.

His mother tongue was Tamil. He learned more than four languages, was a scholar in Sanskrit and was an outstanding linguist.

His literary output in Malayalam was tremendous. His poetic talents surfaced early and was fostered and encouraged by his literary patrons. Ulloor is a perfect classicist and his poetry bears the stamp of his scholarship. His epic 'Umakeralam' is chaste and blemish less. When the short narrative poems (Khanda Kavya) were in vogue, he wrote 'Karnabhooshanam' and 'Pingala' which to this day remain unmatched. His poems are poignant personal utterances through the fire and the feeling is camouflaged under myth and allegory. The magnum opus of Ulloor is the monumental history of Malayalam literature (Malayala Sahithya Charitram), which was posthumously published by the Kerala University. It is as significant a work as the Cambridge History of English Literature. He was an exceptionally scholar with a sense of history, a profound grasp of the classical spirit and meticulous attention to



details. He made a deep study of ancient literature and palm leaf manuscripts. He brought to light the earliest Malayalam poem 'Rama Charitham' and the earliest Malayalam prose 'Dutavakyam'. Many cantos of 'Kannassa Ramayanam' were annotated and edited by him.

Ulloor has unearthed many important ancient works related to Kerala and Malayalam and published them for the benefit of posterity. Most of his works whatever the subject of content has a philosophical twist. In *Premasangeetham* (literally 'Song of Love') one of his masterpieces; the poet glorifies the concept of love. In it he says that love is the only religion in the world, and describes the rhythmic harmony between man and nature. The poem concludes in a highly philosophical note - ' You, me and the Paramathma (the Almighty) are one and the same '

A colossus, he dominated the literary and cultural life of Kerala for nearly half a century and his contributions are unique in quantity and quality. He passed away on 15 June 1949 at the age of 72.

1.1. Digital Archive Models

The contributions of Ulloor detailed above shows that the quantum and quality of his works is comparable to that of any great men of the world like William Wordsworth, Darwin, George Washington, Rabindranatha Tagore and Mahatma Gandhi. The works of most of such great men have been archived in advanced countries. With the possibilities offered by ICT for collecting all the works/records related to a person at one place and making it accessible worldwide has become easy and efficient. Already many Digital Archives on this line have been attempted in India and else where. The following are three examples on which the Digital Archives of Ulloor is based.

1.1.1. George Washington Archive

The complete George Washington Papers collected at the Manuscript Division of the Library of Congress is digitized in George Washington Archives which consists of approximately 65,000 documents. Document types in the collection as a whole include correspondence, books, diaries, journals, reports, notes etc accumulated by Washington from 1741 through 1799. Because of the wide range of Washington's interests, activities, and correspondents, which include ordinary citizens as well as

celebrated figures, his papers, are a rich source for almost every aspect of colonial and early American history. In its digital version, the George Washington Papers consists of approximately 152,000 images. This project is funded by Reuters America, Inc. and the Reuters Foundation.

1.1.2. Darwin Archive

The complete collection of Darwin's writings ever published appears in the Darwin Archive. All the Darwin related material, including many rare and widely dispersed items, have been brought together in one place and made available for free access. The archive holds more than 50,000 pages of searchable text and 45,000 images of both publications and transcribed manuscripts. Most of the materials are available both as fully formatted electronic text and color images of the originals. Darwin's works are also available in the archive as machine-read audio mp3 files. The archive also includes the largest Darwin bibliography ever produced, based on the work of R. B. Freeman, and the largest catalogue of manuscripts (with over 30,000 entries). The archive contains the first edition of the *Journal of Researches* (1839) (or *Voyage of the Beagle*), *The descent of Man* (1871), *The Zoology of the Voyage of H.M.S. Beagle* (1838-43) and the 2nd, 3rd, 4th and 5th editions of the *Origin of Species*. There are also many newly transcribed and never before published manuscripts such as Darwin's *Beagle* field notebooks.

1.1.3. Mahatma Gandhi Digital Archive

The only Indian digital Archive on any person produced till now is on Mahatma Gandhi. It contains the full text of the 100 volumes of Complete Works of Mahatma Gandhi coming to approximately 50000 pages, more than 50 audio files of talks by Gandhi and hundreds of video clippings from the government archives consisting of the important talks and instances on Gandhi's life and work.

If we could materialize the Digital Archives of Mahakavi Ulloor S Parmeswara Iyer it will be the second such attempt in India.

2. Mahakavi Ulloor Memorial Library and Research Institute (UMRI)

Digital Archiving on a person is to be undertaken by an institution which is having most of his works and personal collections and also having contact with his family and persons and institutions related to him or his life and activities. When these



aspects are considered Mahakavi Ulloor Memorial Library and Research Institute, Thiruvananthapuram (UMRI) is the organization which is capable to undertake this great work. Spatially it is located very near to the house which was Floor's residence. A major portion of his personal collection has come to this institution. Collections of those who have did research on Ulloor and his contributions have also come into this UMRI's collection.

Ulloor Memorial Library was established in the year 1956 in Kannettumukku under the guidance of P K. Narayana Pillai, Dean of the Kerala University's Department of Oriental Studies. Three year later, the Government donated a plot near the DPI Junction for the Ulloor Memorial Library. The new two-storey building for the memorial was inaugurated in 1966 by Dr. Savarpally Radhakrishnan the then President of India. In 1977 the then Prime Minister Morarji Desai inaugurated the UMRI. In the same year UMRI was recognized as an institution for literary activities and research in humanities by the Government of Kerala. In 1977 an Open University Centre was established in the UMRI and under it a Diploma course in Literature for the lay men was started. In 1978 Government of India provided financial support for building, equipments and collection development. During 1978-79 the UMRI started Two Year Post Graduate Course in Malayalam language and literature. During the period of its existence the UMRI has conducted various technical seminars, workshops, academic programmes, and also published numerous research monographs and books.

Support for its development came from University of Kerala. Travancore Devaswom Board, the Royal Family of Travancore, Government of India, State Government and many philanthropists. Presently UMRI manages an A Grade Public Library supported by State Library Council, and also provides information support for academic research in Malayalam language and Kerala culture. Great personalities like Dr. K.M George, Sri. M.P. Appan, Dr. V.S Sharma, Dr. Mavelikkara Achuthan, Sri. Panampalli P Govinda Menon, Sri. T.K Divakaran, Sri. A. K Antony, Sri. N.N Wanchoo, Sri. C H Mohammed Koya, Sri. K K. Viswanathan, Sri. K R. Srinivasa Iyyengar, Dr. N P Unni, etc have associated with UMRI or participated and supported its various programmes.

UMRI houses an invaluable collection of books used by the Mahakavi Ulloor. The private book collections of some eminent personalities like Kainikkara Kumara Pillai,

P. Kesava Dev, Dr. K. Ramachandran Nair, and C P. Nair. V.S. Sharma and Dr. Somasekaharan Nair which contains very valuable and otherwise not available documents are now part of the UMRI. This forms the authentic and otherwise not available invaluable resource that can support research in Kerala history, culture, language and literature. Documents from this collection will form the major content of the proposed Digital Archive.

2.1 Objectives of UMRI

The Mahakavi Ulloor Memorial Library and Research Institute (UMRI) is a not for profit organization registered under Travancore Cochin, Literary, Scientific and Charitable Societies Act of 1955. The objectives of the organization as per its constitution are the following.

- ? to promote research in humanities, particularly in Kerala history, culture and Malayalam language and literature
- ? to promote studies by and on Ulloor S. Parmeswara Iyer.
- ? to assess the contribution of Kerala to Sanskrit literature
- ? to arrange lectures for post graduate students in Indian languages and provide facilities for research
- ? to conduct courses in Indian languages
- ? to recognize the services of distinguished scholars, researchers and literary men
- ? to organize seminars, symposia and conferences on language; literature and culture, especially on Mahakavi Ulloor and his works
- ? to establish and run a translation service
- ? to publish books and periodicals of literary and research significance, including translations

3. Objective of the Ulloor Digital Archive

The proposed Digital Archives will work diligently to be true to the mission of Mahakavi Ulloor S. Parmeswara Iyer as well as the UMRI, serving the future generation by using ICT for conserving treasured items related to Mahakavi Ulloor as well as rare and valuable documents on Malayalam, language and literature, Kerala history, culture etc. Stress will be given to items on the Mahakavi Ulloor's life and work. The main objectives of the Ulloor Digital Archives can be listed as follows:



- ? To promote studies on the life and work of Mahakavi Ulloor S. Parmeswara Iyer.
- ? To develop a digital archive of manuscripts, books, articles, images, audio and video files on Mahakavi Ulloor.
- ? To develop digital archives of the rare and antique books, journals and other documents of Mahakavi's personal collection as well as other collections received at UMRI.
- ? To establish a Museum on Mahakavi Ulloor and also develop a Virtual Museum on Ulloor accessible worldwide.
- ? To collect organize and make available for research and reference, manuscripts, books, audio and video materials, digital content and other items related to Mahakavi Ulloor S. Parmeswara Iyer, Kerala culture, Malayalam literature etc.
- ? Publication of the complete manuscripts of Mahakavi Ulloor in digital form and also to make it accessible through the web.
- ? To gradually expand the existing collection at UMRI to a complete and reliable collection on Malayalam language and literature in digital form.
- ? To develop the UMRI into a very stable source of information for research in Malayalam language and literature.
- ? To use CT to conserve, publish and disseminate content of rare and old books, journals, manuscripts, paintings and other documents available at UMRI's collection.
- ? To establish a Digital Library/Archival lab which can be used to digitise the documents available at UMRI as well as support, other public libraries having rare collections like Avittam Thirunal Smaraka Garnathasala, Sree Chithira Thirunal Granthasala etc to digitise and conserve their collections of old and rare documents.
- ? To provide information retrieval/dissemination services either online or offline in all areas of Malayalam language and literature and Kerala culture and to give overall information support in all areas of knowledge related to literature, linguistics and culture of the State as well as its contribution to Sanskrit and Indology.
- ? Publication of the full set of old and rare journals available at UMRI in CDROM with UNESCO supported software.

- ? Conservation of old and rare documents of cultural and literary value by copying them into electronic mediums.
- ? Setting up of an online Digital Library of works by and on Mahakavi Ulloor and providing access to it through Internet.

3.1. Headquarters

Headquarters of the Ulloor Digital Archives will be located at UMRI, Jagathi, Thiruvananthapuram which houses the personal collections of the Mahakavi as well as that of many other scholars.

3.2. Nature of the Organization

Ulloor Digital Archives will be a sub system of UMRI, which will maintain the Digital Archives and Library and also related Reference Research and Documentation Services for writers, research scholars and the public, interested in the collection. Any income the Digital Archives generates in future will be used to support the various archival projects related to Malayalam literature, Kerala culture etc initiated by UMRI.

4. Resources Available

UMRI hold very important and otherwise not available resources that can support research on Malayalam language, and literature as well as Kerala history and culture as well as Kerala's contribution to Sanskrit and Indological studies. Hence the collections are highly used by teachers, students, journalists and writers from various universities and mass media. The resource available at UMRI which is to become the base for Ulloor Digital Archives is the following.

- ? The personal collection of Mahakavi Ulloor which consists of very rare and antique books, journals and manuscripts, the items which formed the sources of his research and work
- ? The rare documents donated to the UMRI from the private collections of eminent personalities like Kainikkara Kumara Pillai, P. Kesava Dev, Dr. K. Ramachandran Nair, and C P. Nair. V.S. Sharma, Dr. Somasekharan Nair etc.
- ? The rare collection of books, photographs and other documents on Ulloor available at many private collections accessible to the UMRI.

- ? The works of and on Ulloor and many compilations, lectures and discussions on Ulloor's contribution to Malayalam language and literature.
- ? The bound volumes of earlier Malayalam journals available at the UMRI consisting of very rare and otherwise not available items the value of which can not be assessed in terms of money.

A quick scanning through the collection showed that many titles available are of great research value. Rare and otherwise not available renderings of many ancient Sanskrit works as well as their originals are also available in the collection. These can serve a great deal in promoting research and studies in Malayalam language and literature and Kerala history and culture. The total collection comes to approximately 15000 volumes. Of this approximately 5000 volumes are understood to be very rare and valuable documents otherwise not available. A select list of the important Malayalam books and journals available in the collection is presented in Appendix I and II.

4.1. State of the Resources

Presently there is no provision for the scientific organization and conservation of the documents available at UMRI. The safety of these items is at risk. Books and journals printed on acidic pulp paper have become brittle and will eventually crumble to dust.

The gum used for binding of some books has also caused deterioration of paper and stitching. The accumulation of dust, attack of pests like silver fish etc also threaten their life. The condition of many documents are very brittle and near to destruction. There is no facility to technically restore, strengthen and conserve them.

The document collection available is kept in a dusty environment which also can cause health problems to those who handle them for maintenance or reference.

There is no proper authentic stock record of the available materials or any facility to scientifically document them.

The loss of items from this collection may result in the loss of invaluable resource available at the UMRI and will be a great loss not only to the members/users of the library but a loss of heritage items to the whole humanity.

4.2. Consultation from CSIS

Centre for South Indian Studies (CSIS) is a not for profit research organization functioning under Government of India Societies Registration Act XXI of 1860 with a mandate to pursue and strengthen inter-disciplinary research and studies relating to political, social, religious, cultural economic and scientific development of South India, and to promote interaction among all persons, bodies and institutions engaged in Indological / South Indian Studies. In using ICT for conservation of heritage items Centre has tie up with Centre for Informatics Research and Development (CIRD) which has high profiled consulting group specialized in Information Systems, Linguistics, Documentation, Development of Digital Libraries/Archives/ Library Catalogues/Databases/ Documentation Systems etc. Centre has supported the first multilingual full text digital archives of Malayalam and English documents available at Trivandrum Public Library. Centre has also initiated a Kerala History Digital Library project. UMRI has expressed its interests to digitize its rare documents collection and requested to for preparing a project report on the matter. In response the technical experts from CSIS and CIRD visited UMRI during December 2006 to analyze the existing system. A Draft Project Proposal on the matter was developed by CSIS under the leadership of Dr. R. Raman Nair. Based on it a detailed discussion was conducted with Sri. Sreekumar and Sri. Sankar who represented the UMRI in regard to all aspects including the technology and processes of digitization.

Based on these discussions Draft Report was prepared and was discussed with the Technical Group of CIRD. The report was revised based on comments and suggestions of CIRD. A copy of the same was provided to UMRI in first week of January 2007 for comments. Later CSIS has finalized the report incorporating required technical details and specifications in February 2007. (Version 2.5)

CSIS has also informed that the cost of project envisioning and consultancy which comes to 2 % of the total project outlay i.e. Rs. 40, 000 (Rs. Forty thousand) was relaxed by CSIS and CIRD it due to the fact that the project is related to the conservation of knowledge/heritage items using ICT which forms the main objectives of the CSIS and CIRD also.

4.3. Conservation / Development Work to be Undertaken

UMRI has to preserve the document resources that came to it from various sources including the; personal collection of Mahakavi Uloor. To effectively undertake these responsibilities UMRI has to harness the possibilities offered by ICT, and develop digital libraries/archives of old, rare and valuable documents held in UMRI's library collection.

The modernization of the library and information system of the UMRI with facilities for applying ICT has become very important and urgent. Before that the following traditional cleaning/conservation efforts also needs to be undertaken as priority work.

4.3.1. Cleaning

The books are to be kept initially in sunlight for 3 to 4 hours. Then dust from the books is to be removed carefully using painter's flat brushes (3-4 inch) and again books are to be re-shelved. The process is to be repeated for three days to let the insects and moisture leave the books. The shelves and the room/space where the collection is to be re-organized is to be cleaned using a vacuum cleaner. Natural light and air should flow into the room selected for housing the collection.

4.3.2. Restoration Work

Most of the publications available at UMRI are not printed on acid free paper. Books of antique nature available among them therefore need to be chemically treated, stored, housed and specially cataloged. Depending on the value, condition and uniqueness of the publications; priority is to be decided for their digitization and conservation efforts are to be undertaken. A de-acidification off-site may be considered at some time later using a professional specializing in this type of work.

4.3.3. Binding

Stitching of many books in the collection is broken. Some books have only soft paper back covers which will not last if they are put into use. All such books require binding. The books that require binding should be immediately separated. Each book with loose broken binding/leaves should be tied with British twine. If they are having soft cover only the book should be inserted into a hard paper folder before bundling it.

If any of the books that requires binding are identified to be titles meant for digitization the books should be send for binding, restoration work only after digitization.

All books except those to be digitized should be immediately sent for binding. The work should be entrusted to a local binder who can undertake the work with love and care.

4.4. Documentation Work to be Undertaken

Proper classification, cataloguing and listing the books in stock and other records etc are very important to make people managing the collection accountable as well as for organizing the collection for use. Speedy and efficient retrieval of books by users require the books to be classified, catalogued and physically organized as per the classified order. The following processes should be completed before the starting of digitalization project or as a parallel process.

4.4.1. Stock Entry/Listing

All the books should be entered into a bound Stock Register specially prepared for the purpose. The register should contain the following columns (horizontally). Standard stock registers having similar columns are available in Stationary shops. Registers with leather bound/spine and good quality lined paper with page numbering only should be preferred.

Stock Number – Title – Author -- Place and Publisher -- Year – Price – Gifted/Supplied by.

If UMRI is computerizing its library catalogue immediately; the stock register with the above data can be printed out as it's by product. The stock will become accountable

4.4.2. Classification

As there is no classified arrangement of books at UMRI the books on the same subject are spread through the length and breadth of the collection at any point in the shelves are mixed with many subjects and users have to unnecessarily disturb the whole collection to trace out a book. So the books should be classified according to some internationally accepted standard. Dewy Decimal Classification Scheme (DDC)

can be used. The concerned number should be written with pencil at the back of the title page as well as marked in the sticker (Book Tag) to be pasted at the spine of the book. This work should be entrusted to one qualified in Library and Information science.

4.4.3. Catalogue of the Collections of UMRI

UMRI is not having a reliable catalogue of its collections. So it is very difficult for the library user to understand speedily if a specific document available in the library or not. The stock registers are also in very dilapidated condition and are not complete. So in the present state it will also be difficult to identify if the UMRI has lost any rare document from its collection. The books are also not scientifically classified and arranged. So even if a book is understood to be available it will be difficult to trace out the book from shelves. So the classification, cataloguing and stock entry of the books are to be taken as priority items if the valuable items are to be protected from loss.

If the UMRI classifies the book according to some standard scheme like DDC and catalogues the collection using some library software one or more copies of the stock register also can be printed out as by product from this database/work.

It is recommended that institute get the data entered in the some library database mechanism like CDS/ISIS of MISIS which can process Malayalam script as well as can be used as metadata system for digital archiving also. The data base can be published in CDROM. The same can be distributed to each and every member as well as can be exchanged with other institutions for their similar databases.

4.4.4. Suggestions on Cataloguing and Data Entry

As the collection at UMRI consists of books in Malayalam, Tamil, Sanskrit, Hindi, English etc is advisable to use a computerized cataloguing system that can handle all language and is also UNICODE II compliant. But such systems with multilingual capability are not presently available at affordable cost.

Hence if there is insufficiency of funds catalogue of English books should be prepared in the a computer using CDS/ISIS the software freely distributed for the purpose by UNESCO working for conserving cultural heritage of the humanity. Catalogue should contain the fields as per details specified for stock register in Para

4.3.1 above in addition to a 300 word abstract/note on the book. This work should be entrusted to a Library and Information Science professional staff with minimum knowledge of computers and DBMS. One who can understand and summarize the content of the book/document should assist the person who is entering the data. An approximate qualification and capability to be searched for in these two professional hands is as follows.

The professionals to be used should require BLISc as Minimum qualification which includes specialisation in Bibliography, documentation, computerised database preparation etc and hence these staff can be utilised to prepare the bibliographies and directories. They should also have a PG in Malayalam, Sanskrit or History.

Required database management software can be obtained as support from United Nations Educational Scientific and Cultural Organization (UNESCO) which supports to develop catalogues of heritage documents. For any further information or technical support in this regard UMRI can contact Centre for South Indian Studies or CIRI.

It is advisable to use a programme that can handle Malayalam script for computerizing the catalogue of Malayalam documents available in the collection. The catalogue can be published in CDROM also. Government Brennen College Tellycherry has published its catalogue of 21000 Malayalam books in CDROM with a search mechanism that can use Malayalam script. Such programmes may be considered. The programme used should be Unicode II compliant.

4.4.5. Book Plates

Sufficient number of say 20000 Book plates with the stamp size picture of Mahakavi Ulloor and the name of the Institute - Mahakavi Ulloor Memorial Library and Research Institute should be got printed. This should be pasted on the verso of the front cover/bind of each and every book.

4.5. Collection Development Works to be Undertaken.

UMRI is having many of the published works of Ulloor, works on Ulloor and some of his manuscripts and photographs. But the collection is not complete. UMRI should attempt to acquire one copy each of all the published works of Ulloor. It should also try to acquire one copy of all the first editions of the works of Ulloor available in private collections. If that is not possible it should document the data related to

availability of the first editions of Ulloor's work available at different libraries and collections as well as data on locations where manuscripts by an don Ulloor are available so that when digital archiving is started it can request the support of the institution /individual possessing the copy to permit taking a digital copy of the document from them for Ulloor Digital Archives.

A small selected collection of reference books from the titles published by Kerala Sahithya Akademi, Kerala Sangeetha Nataka Akademi, State Archives, Kerala State Historical Council, University of Kerala etc can also be acquired to improve the reference facility. They contain recent editions of works of Ulloor as well as studies on Ulloor. These books are cost priced. Also digital audio and video of Malayalam poetry recitations, etc should be acquired. This can be periodically played/screened to create interest among the children in Malayalam language and literature. Some Philanthropists should be approached for a possible purchase and donating of such a selected collections and equipments required for their viewing/playing.

4.6. Improvement of Facilities

Along with development of the Digital Archives some of the traditional facilities are to be improved as well as facilities for providing services using the modern systems are also to be developed with the objective of extracting maximum utility of the resources held by UMRI for the people and also from the proposed Digital Archives.

4.6.1. Building Space

Presently UMRI got only very limited space which is not sufficient to comfortably house the present collection. Adding space without destroying the beauty and serenity of the present campus and building should be considered. Later when UMRI extends its activities and gets established among the academic and research institutions in the State as a reliable source for information establishing infrastructures like a vast campus in some place near Trivandrum may be considered.

4.6.2. Provision of Computers

UMRI can use Information and communication Technology for managing its knowledge/document collections, for conserving archival materials related to Ulloor and for collecting, organizing and disseminating information and knowledge on Ulloor

and his works as well as Malayalam language and literature. Presently only one computer is available at UMRI. Along with this; one or two computer and components of the specification as per Appendix IV and V should be acquired for the purpose of digitization work as well as other activities mentioned in this report. They can support the work as well as services/information access by users. Along with providing access to the digital resources developed by UMRI the computers can be used for the following functions.

- ? For publishing a monthly or quarterly news letter
- ? Maintaining databases of stock so that stock will become accountable
- ? For publishing books and audio and video programmes containing recitations of poems of Ulloor, his translations of Sanskrit works etc.
- ? Preparing/updating a searchable automated catalogue of the books, photographs, audio files, video files, manuscripts etc available at UMRI. This will enable the members to know what is available.
- ? For generating and publishing a printed catalogue.
- ? For making available for reference digital versions of rare books, archival materials on Ulloor etc of the UMRI as well as other sources.
- ? To make available for use the audio and video programs on Malayalam language, literature, Kerala culture etc stored in digital form at UMRI
- ? For digitalization of small documents related to Ulloor received from time to time for copying and addition to the Ulloor Digital Archive in later years.
- ? To periodically update the UMRI website.

4.6.3. Audio Visual Resource Centre

An audio visual resource center can be established at the UMRI to use traditional and digital audio and video files related to Malayalam, language, literature and culture.

4.6.4. Service Timings/Conditions

Presently the UMRI is not open to the users on all days of the week and from morning to evening. As the books available are not scientifically organized for use the library facility is not optimally utilized. Even if used there is no provision to control the movement of documents which may also result in loss of documents. Hence the

UMRI may consider the revising the timings as well as the terms and conditions of membership as well as access.

Opening hours of the UMRI can be controlled as follows.

Saturday and Sunday: 10AM – 8 PM

Other Days: to be decided

4.6.5. Publications of the UMRI

Using the computer and printer a monthly or quarterly News Letter of UMRI can be published and distributed among the Members and the public. The computers can be used to prepare and publish audio CDs of poems of Ulloor, as well as audio and video lectures from the programmes organized by the UMRI.

4.6.6. Ulloor Website

The present website of the UMRI is not indexed in the search engines like yahoo, Google etc. it also needs to be upgraded. A domain name should be established in the name of Mahakavi Ulloor. The website also should be developed to provide some information services through it. The site should publish the newsletter, books etc related to Ulloor and the activities of the UMRI for worldwide access. The digital archive developed by the UMRI should be made accessible through the website in future.

5. Digital Archiving Project

The Digital Archiving of the following items is the main objective of the project.

- ? Original manuscripts; published and un published of Mahakavi Ulloor
- ? Photographs, press clippings etc related to Ulloor
- ? First editions of all the works of Ulloor
- ? Complete works of Ulloor with images of the corresponding manuscripts.
- ? Digital audio, video etc of poems of Ulloor and other related items.
- ? All the books and journals that existed in the personal collection of Ulloor which formed his source of study
- ? The rare and antique journals donated by other writers to UMRI from their personal collections.

- ? Development of a Virtual Museum on Ulloor using some virtual reality package and the content of the Ulloor Digital Archive

The items mentioned above are to be digitized to develop the Ulloor Digital Archive at UMRI. Required software can be obtained from United Nations Educational Scientific and Cultural Organization (UNESCO) which supports governments and NGO's to conserve heritage items. Organizations like Centre for South Indian Studies also can cooperate in various aspects of Digital Archives development.

5.1. Facilities and Infrastructure for Digital Archiving.

For digital archiving and for generating electronic/CD publications a Digital Library/ Archive Lab need to be established. If a lab is established at UMRI it can undertake digitisation of works for libraries having rare collections like Avittom Tirunal Library, Sree Chithira Tirunal Library etc. This can make the lab self sustainable. At the same time copy of the documents that have been digitised for other libraries can be added to UMRI also to enrich its collection.

If a digital Archiving lab can not be established due to lack of funds or sources of funding it is advisable to outsource the work. Approximate cost of Outsourcing the work are appended for information.

5.2. Digital Archiving Lab

The digital Archiving Lab will require Planetary Scanner, Flat bed Scanners, powerful computers and other equipments. The hard wares used should enable scanning of documents, which are brittle without disturbing or pressing the document. Heat transmission also should be minimized. There should be provision for adjusting the curves, fold etc of the document by lens and mechanical adjustments that does not disturb the document. Soft wares used should be of international standards particularly those developed or recommended by UNESCO. The source code of the database management systems and software should be open and it should enable UMRI to modify the data, extract the data or transfer the data to another format as and when required. The programmes used should be internationally acceptable.

5.3. Benefits of Digital Archiving

Digital archiving of the rare books, journals, manuscripts and other documents held in the collection of UMRI can allow the following facilities:

- ? Its resource can be searched and retrieved through an electronic catalogue.
- ? Its resources may be distributed through a local area network or Internet.
- ? Digital Libraries and archives can be used from distant locations through Internet without coming to the UMRI.
- ? If library's rare, special and unique collections are digitized and kept in hard disk/CDs/ Jukebox Systems/CD server etc., originals can be conserved without loss or deterioration.

So digitizing rare collection of library for better preservation and content management is the present trend. In the past this objective was partly met by microfilming which is becoming obsolete as an archival technology. What is prevalent at present is conversion of printed documents in to digital form. Even microfilm and microfiche documents are now converted to digital form. Now we have books, journals, newspapers, reference books and even libraries and museums in the digital format. The popular media in which digitized collections are stored is CDROM. An ordinary CDROM can hold about two and half lakh pages of text subject to the format selected.

5.4. Software Solutions for Digital Archiving

Although, several packages are in vogue for materializing digital archives, they lack efficient search mechanism. Devoid of a search mechanism, digitally stored information in hard disks and compact discs will remain as dump places of information, just the same way as documents converted into microform. So while digitizing a collection selective access to content also is to be made possible. Then only it can become digital libraries and archives to perform the traditional functions of a library.

Depending upon commercial agencies fully for the creation of digital libraries is neither practicable nor cost effective. There fore, it is necessary to make professional approaches towards the development of appropriate utilities.

The programme used for Digital Library development should have the following facilities:

- ? The package should enable fast search and retrieval of documents from digital libraries/collections.
- ? It should facilitate creating stand alone Digital Archives
- ? It should be ideal for publishing digital collections in CDROM.
- ? It should be of standards accepted by international organizations giving leadership to exchange of cultural information.
- ? The source codes of the database engine and software used for digital library development should be open and UMRI should be able to update the databases as and when necessary, transfer data to other platforms and packages when necessary, and generate various by products like publications containing one or more documents form the digitized collection.
- ? The documents and data entered into the digital library should be under the control of the same Institute to use the same according to UMRI's requirement.

Cost effective and internationally accepted software available for Digital Library Development are UNESCO's Gen ISIS and Greenstone, CIRD's Nitya, DSpace etc. They can be used in combination with commercially available package Adobe Acrobat. Some programmes linking these two also available.

5.5. CDS/ISIS Package of UNESCO

Most of the projects for digital archiving till now have used CDS/ISIS at front end. The major advantage of CDS/ISIS is that it is developed and maintained by UNESCO an international organization supporting activities like that of UMRI. Recently a Windows version namely WINISIS also has been launched. More than 500 websites are discussing problems and solutions related to CDS/ISIS application. No such fraternity exists for any other library package. In India Government of India supports the use of CDS/ISIS by conducting trainings, workshops and user meetings countrywide.

UNESCO is expanding the horizons of CDS\ISIS by developing WINISIS, WEBISIS, Gen ISIS, ISISJAVA and ISISDLL for Visual Basic and Delphi. Any database developed using CDS/ISIS can now dream of upgrading to any future platforms. All this know-how is available as if it is free and a host of individuals/institutions around the world is ready to give us advises on any problems we encounter while using this

package. CDS/ISIS's strength lies not only in its superiority as a bibliographic documentation system but also in this growing cyber community. Its source codes being open any change or customization by UMRI at a later stage will be possible. Also transfer of data from CDS/ISIS to any database management systems will be possible. The following reasons also support using the search engine of CDS/ISIS in the digital libraries.

- ? It's method of indexing, search and retrieval is superb and adheres to library and documentation principles.
- ? Malayalam, Tamil, Sanskrit versions of the package are becoming available.
- ? UNESCO is developing many sister applications so that databases in CDS/ISIS can be made adaptable for future conversions, up gradations and transformations.
- ? In India most of the library professionals possess working knowledge of CDS/ISIS. So ISIS based applications will be easily digestible and maintainable by librarians and archivists.
- ? International popularity of CDS/ISIS is increasing and Internet provides a universal platform to discuss problems and solutions related to CDS/ISIS.
- ? It is designed after 'integrated database' concept, which is ideal for bibliographic databases. It is faster in search and retrieval, compared to many modern RDBMS.

5.6. Conversion of Pages to Digital Form

The package for digital conversion of scanned pages is to be selected considering various aspects. Conversion of pages to digital form should be done with all the page lay out features of the original intact and by compressing the file sizes to minimum. It should be able to subject these files to OCR, and converts character images to ASCII equivalents and at the same time keeps form attributes; page lay out features and image qualities of the original page. Any part of the text, which is 'suspected' by the capturing process, is not changed to ASCII characters. Those parts should be kept as images without affecting the page lay out. These 'suspected' images could be manually edited later to its equivalent texts. This will be beneficial in many ways. It reduces the file sizes; it increases the visual quality of the text; and it corrects verticality/ horizontality. More than all it will make 'word search' possible.

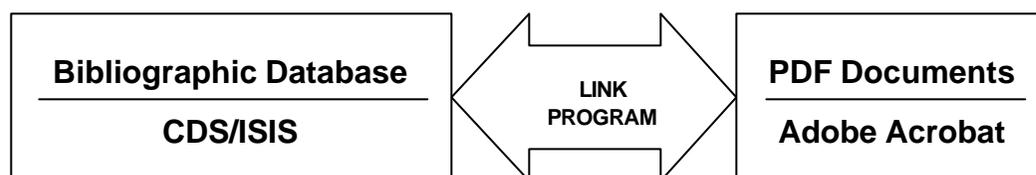
Hypertext facilities should make the documents `navigatable`. `Book marking` should be possible. The package should facilitate hierarchical listing of Headings of chapters and sections at left side of the text. This list should work, as a table of contents and clicking the bookmarks should open pages of respective chapters and sections. The package should enable creating bookmarks up to any levels of sub sections.

5.7. Adobe Acrobat

Adobe Acrobat Package is recommended for page conversion. Besides fulfilling the above requirements it provides the following advantages over traditional word-processed or merely scanned pages:

- ? Different `page views` (Actual size, Fit width, Fit in window) are available and any part of the text/image can be magnified up to 1500 percentage. If the pages are `captured`, characters keep high definition even when blown up to maximum,
- ? Different kinds of hyper linking can be constructed easily.
- ? It retains lay out features of original pages and keeps the historicity of the document intact. This is particularly important when a digital archive of historical books scanned from original editions is planned.

Based on the above factors the following system is recommended for the Ulloor Digital Archives.



5.8. Digital Archives User Interface

User Interface of any Digital Archives/ Library should exhibit 4 distinct areas. Those are for dictionary, query and minimum and elaborate bibliographic details. Dictionary should contain searchable terms arranged under different categories such as subject, author, general topics, etc. Number of categories depends on the type and characteristics of the collection. It should enable selection of Search terms from the dictionary by a few alphabetical strokes. Clicking in the dictionary, should transform terms to `Query` area. Formulated queries using Boolean/proximity operators should

be possible. The programme should submit Queries to search and results should be exhibited first with minimum details and then in full bibliographic details. When the 'Full Text' button is clicked, the full text should open in Acrobat Reader and thereafter it should be able for the user to navigate using bookmarks and other hyper links.

Paradigm used to develop the Digital Archives should be the same as user approach to books in traditional archives and libraries. When a user enters a library, he goes to the catalogue first and searches under appropriate access points such as author, title, subject, etc. This enables the user to get the documents he wants. He locates relevant chapters/pages of the book with the help of table of contents and index. In the same way, when one opens the Ulloor Digital Archives in his computer or through Intranet or Internet, a dictionary of keywords similar to traditional catalogue should appear. Terms in the dictionary should become available to form queries. Search should yield hit of relevant documents with bibliographic details. Full text should then open and he should be able to navigate the entire text through bookmarks. The traditional Library/ Archives -and Digital Library/Archives have parallel movement of the user from search to required peace of information. But in digital Archives the retrieval is faster, efficient and more accurate. The Ulloor Digital Archives should be developed in accordance with that.

5.9. Nitya Archives

Nitya Archives is one of the programmes that can be used for Digital Archives development. Nitya is programmed as an interface between CDS/ISIS and Adobe Acrobat. Nitya is conceived as a flexible archival system. Documentation methods, dictionary building and query methods can be changed depending upon the nature of materials and collection. As the archival and retrieval of journal articles, books, manuscripts, etc. are different from each other, Nitya can be customized for each if essential. Nitya application for Indian languages is also available. Nitya was the first package in India that developed search mechanism for Malayalam Script. Presently Nitya can be used to prepare Databases in Malayalam as well as for developing multilingual databases. Nitya can facilitate electronic publishing and marketing of collections of the UMRI.

There are also many other packages that provides interface between CDS/ISIS and Adobe Acrobat developed by international organizations. CDS/ISIS being a package

developed by UNESCO, most of the digital library solutions using it is not very costly or produced with business motives.

6. Resource Requirements

The development of Uloor Digital Archive may require adding resources of various kinds to the UMRI like, staff, equipments, space, content etc. the essential items of requirements are detailed below.

6.1. ICT Stacks and Solutions

A Technical Report on establishing Digital Archiving Lab as a common self sustainable facility at UMRI will be provided by Centre for Informatics Research and Development separately and hence the details of infrastructure required for that is not included in this report. Even if a Digital Archiving lab is not established at UMRI and the digital archiving work is out sourced some infrastructure is essential at UMRI for updating the archives as well as for providing services using the archived resources. After the digital library project is completed a small LAN with one LAN server and 5 user computers is proposed. Recommended specifications and product details of similar systems available in the market manufactured by Hawlet Packard is appended. This facility can be used to consult the catalogue to refer the books from the digital archives as well as use world wide libraries through Internet. A Digital Library Storage system like a juke box or mirror server with CD Net packages can be established and connected to this LAN. Detail of one storage solution manufactured by Excel Meridian Data Inc is provided in appendix _VI. So various reference sources presently available in digital version like Akhila Vijnana Kosam, Encyclopaedia Britannica etc can be acquired and incorporated in the digital Library system in addition to the Uloor Digital Archives. If there is a network with five systems five users can use the resources at the same time. The originals or the CD copies need not be handled and hence their safety and security will be ensured.

6.2. Project Staff

The support of Professional staff is essential during the development of Digital Archives as well as for various technical processes like cataloguing classification etc. some from the administrative side also should concentrate on financial affairs.

The following staffing method is proposed for the period of work

Period estimated for cataloguing and listing the stock of the 15000 books is 6 months to one year if sufficient human ware could be engaged. Period estimated for digitising priority items in the collections under the UMRI is three years.

Even if the work is outsourced it is advisable to have two persons to associate with the UMRI in managing administrative matters and providing technical constancy for the project. It can be combined in one person or two persons as follows:

Project Consultant: Should be a Library and Information Science professional of proved innovation and achievement in digital archiving related areas. Purchases, installation, and decisions regarding any aspect of the Digital Archives/Library Development and establishment of the conservation laboratory at all stages should have full involvement and participation of the expert/consultant. (The person should be agreeable to contribute the expertise voluntarily due to the interest in the subject or the interest and of the organization to which he belongs; to associate with the project)

Project Manager: one of the Office bearers of the UMRI who can devote time and closely associate with the project voluntarily to manage its day today financial /administrative affairs and supervise the ongoing work in consultation with the Project Consultant. UMRI should decide on the nature of this position that is should be paid or is be voluntary service.

6.3. Staff Requirement for In-house Digital Archiving

The following are the additional staff requirement for the project if the work is undertaken in-house. The staff is to be appointed on contract basis for one year term at the first instance. The day today functioning of the Project is to be supervised by the project Head.

Project Head/ Librarian: 1 Number: A library and information science professional with required qualifications and awareness / experience in digital library development/computer application aspects. The Project Head should work in close association with the officer in charge of UMRI. Required staff for various professional and non professional works related to the project may be put under the supervision of the Project Head. (An honorarium/stipend should be fixed).

Digitisation Assistants: Having BA/BSc/SSLC and Certificate in Computer Science from a respected institution. (Rs. 2000 per month.). Incumbents with degree in Malayalam, Sanskrit or History should be preferred. The number of staff to be engaged at a time is to be calculated according to the time frame under which the work is to be completed.

Data entry Operator: Having BA/BSC/SSLC with Typing Lower/Higher Certificate in Computer Science/Data Entry from a respected institution. (Rs. 2000 per month.). The number of staff to be engaged is to be calculated according to the time frame under which the work is to be completed

7. Implementation Methodology

The recommended implementation approach is establishing the minimum facility at the UMRI and undertaking the cataloguing work by employing project staff on contract basis under the supervision of the project head/librarian.

7.1. Time Frames.

UMRI is required to recommend realistic time frames for each phase of work as per UMRI's resource strength, requirement, priorities and availability of funds.

Considering the conservation value and use of documents available in the collections at UMRI Library the sequencing of the work and inclusion of the different categories of documents as follows in different phases according to priority to be given is recommended.

8. Phasing of Digitisation Work

The work can be phased into five according to five financial years of the XIth Plan period from 2007-08 to 2011-12 if support from Government of India or State government is expected. This report recommends three phases, each phase covering one financial year and completion of different items of work according to the priority to be given as follows. Detailed Statement including financial aspects are appended in regard to the phasing of the work

8.1. First Phase: 2007-08

Cataloguing: Cataloguing all the Malayalam books available in UMRI using Multilingual Data base Management System. Books: 5000

Listing: Listing/ of all the works in English and Malayalam/Sanskrit. Printing of stock Register. Publication of the catalogue of 15000 books in CDROM.

Preservation: Cleaning/ dust/ pest removing of approximately 5000 books and binding about 500 books.

Preservation: Digitisation of the first editions of the selected books of Ulloor 1500 pages

8.2. Second Phase: 2008-09

Cataloguing/ Indexing: Indexing the articles in all the old and rare journals available in the UMRI of approximately 5000 articles.

Digital Archiving: Digitising all the old and rare journals available in the UMRI of approximately 50000pages. Digitising all the manuscripts, pictures, published books etc of Ulloor available at UMRI or accessible to it of approximately 10000pages.

8.3. Third Phase: 2009-10

Digital Archiving: All the remaining old and rare documents of the personal collection of Ulloor and others held by the UMRI. Approximately 25000 pages will be digitised.

ICT Infrastructure: CD Server/Juke box/Server/Computer Communication Stack/Software required for the project will be acquired and commissioned.

The Ulloor digital Archives will be inaugurated and will become accessible worldwide through Internet.

9. Financial Terms

The total budget estimate for the above project is Rs. Nineteen lakhs sixty two thousand and five hundred. The developments can be undertaken as proposed above in three phases spread over three financial years as detailed above.

The total Expenses for establishing the digital Archives will be Rs. 1962500 and the Estimates of each year will be as follows:

First year; 2007-08:	Rs. 0082500
First year; 2007-08;	Rs. 0630000
First year; 2007-08:	Rs.1250000
Total Estimate;	Rs.1962500

Subject to availability of funds the some specific aspect can be selected. Detailed cost of items is provided in the Appendix. Detailed Estimates for each financial year also are provided in the Appendix –III.

9.1. Voluntary Support

To prevent the loss of the valuable documents available at UMRI as well as rare archival items on Ulloor available in it as well as with the relatives and friends of Ulloor family; institute needs support in its efforts to conserve and preserve them and to disseminate to the writers, researchers and the public the knowledge they contain. Members of UMRI or philanthropists can be requested to contribute by providing work or financial support to conserve the collection and scientifically organize it. A detailed write up on the possible sources from where support can be obtained from some aspects of the project can prepared by CSIS on request from UMRI..

Member and the public can be requested to support the Ulloor Digital Archives project by donating archival materials like pictures letters etc of Mahakavi Ulloor as well as valuable documents on Malayalam language and literature, Kerala history, culture etc. audio and video recordings related to Ulloor and his works. They can be requested to donate funds for some specific aspect of the project which can be well acknowledged permanently in the Archival system.

Centre for South Indian Studies and similar organizations can provide voluntary support for works like the following.

- ? To prepare a digital version of the rare and antique books available in the collection.
- ? To prepare a digital archive of the pictures, letters, manuscripts etc of Mahakavi Ulloor existing in the UMRI and elsewhere.
- ? To prepare the computerized catalogue of the books available in UMRI.

9.2. Contribution to Conservation of Heritage

Ulloor S. Parameswara Iyer was a famous Malayalam poet and a noted historian. Ulloor was one of the famous triumvirate poets of Kerala in the first half of the 20th century. His literary output in Malayalam was tremendous. A colossus, he dominated the literary life of Kerala for nearly half a century. Ulloor has unearthed many important ancient works related to Kerala and Malayalam and published them for the benefit of posterity. The magnum opus of Ulloor is the monumental history of Malayalam literature (Malayala Sahithya Charitram), which was posthumously published by the Kerala University. It is as significant a work as the Cambridge History of English Literature. Ulloor Memorial Library was established in the year 1956 under the guidance of P K. Narayana Pillai, Dean of the Kerala University's Department of Oriental Studies. UMRI houses an invaluable collection of books and journals used by the poet for his studies and research. The private book collections of some eminent personalities like Kainikkara Kumara Pillai, P. Kesava Dev, K. Ramachandran Nair, and C P. Nair also now part of the Ulloor Memorial Library and Research institute. Most of the collection is rare and antique documents which are to be considered as authoritative sources for research on Kerala's culture history. Hence their conservation is very important. Ulloor digital Archives project when completed will make available a complete catalogue of the documents available in this collection and also a digital archive or rare and antique source materials for use of the public. The project will also initiate the works related to identifying and documenting materials on Ulloor available elsewhere. This will be a great contribution to the conservation of our heritage.

Further Reading

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APPENDIX - I

List of Selected Rare and Antique Malayalam Books
Published **Upto** 1925 Available in the Collection of
Mahakavi Ulloor Memorial Library and Research Institute

- 1) നവരാത്രി മംഗലം - ആഴ്വരൻ ശങ്കരപ്പിള്ള
- 2) ലക്ഷ്മി രാജ്ഞി - ത്രിമുഖേന്ദ്രൻ പത്മനാഭപിള്ള
- 3) പ്രകൃതി പാഠം - സെല്ലിയസ് ബ്രൗൺ.
- 4) കേരളദർശനപാഠകരണം - വൈകുണ്ഠ പാഷ്ട് കൃഷ്ണൻ.
- 5) പ്രകൃതി പഠനം - സെന്റർ ഓഫ് സയൻസ് MA
- 6) നികിരണങ്ങളുടെ ചരിത്രം - ഡോ. നാണുപിള്ള ആദർശൻ
- 7) ഭൂമി ശാസ്ത്രം - കെ. ഗോവിന്ദ പിള്ള
- 8) ഹൈക്കിങ്ങ് ദിപ്പിംഗ് - കെ. ബാലകൃഷ്ണ പിള്ള
- 9) ഭൂമി ശാസ്ത്ര ചരിത്രം - പബ്ലിക് വി. നാരായണപിള്ള
- 10) വിദ്യാർത്ഥി ക്ലബ്ബിന്റെ ഉപദേശങ്ങൾ - ഭാഗ്യനന്ദൻ നമ്പ്യാർ.
- 11) പഞ്ചപത്രകേരളം - പി.കെ. ഉണ്ണിപിള്ള
- 12) തിരുവിതാംകൂർ ഭൂമിശാസ്ത്രം - പി.എസ്. സെല്ലിയസ് ബ്രൗൺ
- 13) പുരാണ കഥകൾ - പി. സുബ്ബരായ ഭട്ടർ
- 14) നിബന്ധനകൾ - വിശ്വനാഥൻ തിരുനാഥൻ
- 15) പദ്മപദ്മകോശം - മുരുകൻ രാജാജി ഗോപാൽ

- 16) പാതലകിട്ട (72) ഹൻ ഭയ്യപ്പിന്ന
- 17) ദാക്കിൻ ഭദ്രൻ } (88) പി. ഐ. നാദർ
 ദാസൻമാർ
- 18) രാമദാസൻ } (98) ദാക്കിൻ ഭദ്രൻ
 അരിയൻ
- 19) സ്വായം വിജ്ഞാൻ (109) ശിവലിംഗസ്വാമിൻ
- 20) വഞ്ചിൻ } (110) വഞ്ചിൻ ഭദ്രൻ
- 21) ദാമോദരൻ } (113) ദാമോദരൻ
- 22) ഇന്നവകിവിദ്യൻ } (119) ഹൻ. രാ. നാദർ
- 23) നായനൻ } (120) രാ. ഹൻ.
- 24) മിന്നൻ } (121) ദ. ഹൻ. മിന്നൻ
- 25) മൂന്നൻ } (122) പി. ഐ. മൂന്നൻ
- 26) സ്വായം (124) സ്വ. രാ. മൂന്നൻ
- 27) വിജ്ഞാൻ } (126) മിന്നൻ
- 28) മൂന്നൻ } (127) ഹൻ. മൂന്നൻ
- 29) വയലൻ } (133) രാ. മൂന്നൻ
- 30) Land Tenures } (136) രാമൻ ഭദ്രൻ



- 31) കേരള ചരിത്രം (140) ഖായംകുട്ടി പണിക്കർ
- 32) ചിറക്കോട് കിഴക്കൻ ഭാഗം (141) നീലകണ്ഠ കിരോപാദയാചാരി
- 33) കലാതരം (141) പണ്ണയൻ മേനോൻ കുട്ടി
- 34) താലൂക്കി മേധാവി (145) തിരുവള്ളൂർ ഉപ്പു മേനോൻ
- 35) ഉള്ളൂർ സാഹിത്യ ലക്കം (16) സുകുമാരി
- 36) മലയാളത്തിലെ പദ്യം (172) സി. പി. ഗോവിന്ദപിള്ള
- 37) കേരളപാണിനീല (178) ഐ. നന്ദ.
- 38) സുന്ദരപന്ദിതൻ (185) പണ്ണയൻ
- 39) മിടുക്കൻ പാലം (189) ശിവശങ്കരൻ. ഗോവിന്ദ
- 40) കേരളവിഭാഗിനീല (189) പാമ്പുട്ടൻ
- 41) ഉദ്യോഗാർത്ഥി - (1908) ശ്രീ. പി. ഗോവിന്ദ
- 42) കേരളം - (214) പണ്ണയൻ മേനോൻ
- 43) മിടുക്കൻ പാലം (240) ഗോവിന്ദ
- 44) പണ്ണയൻ മേനോൻ (249) സി. പി. കുറുപ്പ്

- 45) അവാലാതകം 462 ഔദ്യോഗിക രീതിയിൽ
രചിച്ച തത്വവാക്യം
- 46) അവാലാ വിവാഹം 264 അ. സി. ദി. ഭാഗ്യദാസൻ
തത്വവാക്യം
- 47) അവാലാ വിവാഹം 266 അ. സി. ദി. ഭാഗ്യദാസൻ
- 48) അവാലാ വിവാഹം 274 അ. സി. ദി. ഭാഗ്യദാസൻ
- 49) അവാലാ വിവാഹം 294 അ. സി. ദി. ഭാഗ്യദാസൻ
- 50) അവാലാ വിവാഹം 298 അ. സി. ദി. ഭാഗ്യദാസൻ
- 51) അവാലാ വിവാഹം 330 അ. സി. ദി. ഭാഗ്യദാസൻ
- 52) അവാലാ വിവാഹം 333 അ. സി. ദി. ഭാഗ്യദാസൻ
- 53) അവാലാ വിവാഹം 337 അ. സി. ദി. ഭാഗ്യദാസൻ
- 54) അവാലാ വിവാഹം 360 അ. സി. ദി. ഭാഗ്യദാസൻ
- 55) അവാലാ വിവാഹം 361 അ. സി. ദി. ഭാഗ്യദാസൻ
- 56) അവാലാ വിവാഹം 364 അ. സി. ദി. ഭാഗ്യദാസൻ
- 57) അവാലാ വിവാഹം 369 അ. സി. ദി. ഭാഗ്യദാസൻ
- 58) അവാലാ വിവാഹം 375 അ. സി. ദി. ഭാഗ്യദാസൻ
- 59) അവാലാ വിവാഹം 391 അ. സി. ദി. ഭാഗ്യദാസൻ
- 60) അവാലാ വിവാഹം 408 അ. സി. ദി. ഭാഗ്യദാസൻ

- 61) സാമ്രാജ്യ ഭരണ കൃതികൾ (408) രാജഭരണ വ്യക്തികൾ
- 62) ഭരണ ഭരണ കൃതികൾ (409) രാജഭരണ ഭരണകർമ്മ സമ്പ്രദായം.
- 63) ചരിത്ര ഗാനങ്ങൾ (427) കവ്യ, പാദപ്രാർത്ഥന
- 64) (അക്ഷര) ഭരണ (430) വിദ്യാഭ്യാസ ഭരണകർമ്മ
- 65) രാജഭരണ സാമ്രാജ്യം (449) ചിലാങ്കി ഭരണകർമ്മ ഭരണകർമ്മ.
- 66) ഭരണ സമ്പ്രദായം (482) വിദ്യാഭ്യാസ സമ്പ്രദായം
- 67) ഭരണ സമ്പ്രദായം (519) ഭരണകർമ്മ സമ്പ്രദായം, ഉപദേശ കൃതികൾ
- 68) ഭരണ സമ്പ്രദായം (562)
- 69) സമ്രാജ്യ ഭരണ (569) ഭരണകർമ്മ ഭരണകർമ്മ
- 70) ഭരണ സമ്പ്രദായം (611) ഭരണകർമ്മ സമ്പ്രദായം
- 71) ഭരണ സമ്പ്രദായം } (614) ഭരണകർമ്മ സമ്പ്രദായം }
 ഭരണകർമ്മ }
 ഭരണകർമ്മ }
- 72) ഭരണ സമ്പ്രദായം (629) ഭരണകർമ്മ സമ്പ്രദായം
- 73) ഭരണ സമ്പ്രദായം (631) ഭരണകർമ്മ
- 74) ഭരണ സമ്പ്രദായം (650) ഭരണകർമ്മ സമ്പ്രദായം

- 75) ചത്ര നിരൂപണം (652) മേയ്ക്കരി വെളി മോളിനാരു
- 76) ഐശ്വര്യം (683) മൊഴുക്കോര ശങ്കര ഭട്ടനാൻ
- 77) വിശ്വവെളി പാട്ട് (734)
- 78) വനാനന്തരം (741) കെ. രാമ. വാ. വാ. വാ.
- 79) പദ്മനാഭൻ (750) സീൻ സിസ്റ്റർ
- 80) നവനവ സ്മരണ (804) മെ.വ. രാമൻ നമ്പൂതിരി.
- 81) ദി.വ. മൂലാലിനം (818) ഉദയവർ കര. നമ്പൂ.
- 82) മേയ്ക്കരി നിരൂപണം (849) മി.സി.ൻ നമ്പൂ.
- 83) വെള്ളം വെള്ളം (887)
- 84) രാജ്യ ദിനം വാ. വാ. വാ. (896) കി.രാമ.വെ. മൊഴു.
- 85) വിശ്വനാഥ മേയ്ക്കരി (901) കെ.വെ.വെ. വെ.വെ.
- 86) ഉൽസവ കലിയാ ഉൽസവ് (910) ഉൽസവ കലിയാ ഉൽസവ്
വാ. വാ.
- 87) ത്യാഗമുദ്ര (987) വെ.വെ.വെ. വെ.വെ.
- 88) കൃഷ്ണവെ.വെ.വെ. (1065) മി.സി.ൻ മെ.വ. മെ.വ.
- 89) പത്മവെ.വെ.വെ. (1083) മി.സി.ൻ വെ.വെ.വെ.
- 90) മി.സി.ൻ മെ.വ. (1084) മി.സി.ൻ മെ.വ.

- 38) ഭേദിതൻ
- 39) കേരള ചരിത്രം
- 40) വിദ്യാ യോഗിണി
- 41) മനോജനാലിനി
- 42) ധർമ്മ ഭക്തൻ
- 43) സാഹിത്യ സോപാനം
- 44) മെമ്പറ്റിപ്പി
- 45) സാല വിദ്യാർത്ഥി
- 46) ദാർശനിക
- 47) ദാർശനിക
- 48) മിമിക്സ്
- 49) മിമിക്സ് മിമിക്സ്
- 50) കേരള ഭാഷാ
- 51) കേരള ചിന്താ
- 52) ചരിത്ര
- 53) രചന രചന
- 54) സുഭദ്ര
- 55) വിദ്യാഭ്യാസ
- 56) നാടക
- 57) വിദ്യാഭ്യാസ

- 49) ധർമ്മ ഭക്തൻ
- ഉപാസന
- വിദ്യാഭ്യാസ
- മനോജനാലിനി
- നാടക സമുദായ ചരിത്രം
- വിദ്യാഭ്യാസ
- മൃഗ ഭാഷ
- ഗാന
- മനോജനാലിനി
- വിദ്യാഭ്യാസ
- ദാർശനിക
- സമുദായ
- നാടക മിമിക്സ്
- വിദ്യാഭ്യാസ
- മെമ്പറ്റിപ്പി
- മെമ്പറ്റിപ്പി
- കേരള സമുദായ
- സമുദായ
- വിദ്യാഭ്യാസ
- ദാർശനിക
- ദാർശനിക
- മിമിക്സ്
- സാഹിത്യ



APPENDIX II

കേരള ഭാഷാ

U

ഭൂമി
 യോഗ്യത
 മരണ
 ദാരിദ്ര്യ രൂപരേഖ
 ഭരണ വ്യവസ്ഥകൾ
 ഭരണ നിയമം
 നിയമ ഉദ്ദേശ്യ
 ധന രാജ്യം
 വിദ്യാർത്ഥി സഹായം
 സാഹിത്യ സോപാനം
 സാഹിത്യ മത്സരം
 മിമിക്രി
 ഭരണ ഉദ്ദേശ്യ
 ദാരിദ്ര്യ രൂപരേഖ
 ദിവ്യ കൃതികൾ
 മനോരമ
 മൃഗ മരണ
 സാഹിത്യം
 സഭാ ഭരണ
 സഭാ ഭരണ
 സാഹിത്യം
 ഭരണ ഉദ്ദേശ്യ
 ഭരണ നിയമം
 ഉദ്യോഗ നിയമം

ഭരണ
 ദാരിദ്ര്യ രൂപരേഖ
 ഭരണ നിയമം
 ഭരണ ഉദ്ദേശ്യ
 ഭരണ നിയമം
 മൃഗ മരണ
 സാഹിത്യ സോപാനം
 സാഹിത്യ മത്സരം
 മിമിക്രി
 ഭരണ ഉദ്ദേശ്യ
 ദാരിദ്ര്യ രൂപരേഖ
 ദിവ്യ കൃതികൾ
 മനോരമ
 മൃഗ മരണ
 സാഹിത്യം
 സഭാ ഭരണ
 സഭാ ഭരണ
 സാഹിത്യം
 ഭരണ ഉദ്ദേശ്യ
 ഭരണ നിയമം
 ഉദ്യോഗ നിയമം

APPENDIX – III: FINACAIL TERMS OF THE PROJECT**Estimates for First Phase: 2007-08**

Item	Specification	From	To	Estimate Rs.
Cataloguing	Cataloguing: all the Malayalam books available in the Library using Multilingual Data base Management System. Books: 5000	01. 01.2007	30. 06.2007	15000
Listing	Listing/ of all the works English and Malayalam/Sanskrit/ Printing of stock Register. Publication of the catalogue in CDROM. 15000	01.07.2007	30.09.2007	22500
Preservation	Cleaning/ dust/ pest removing. Books 5000	01.01.2007	01.06.2007	5000
Preservation	Binding. Books: 500	01.07.2007	30.09.2007	10000
Preservation	Digitisation of the first Editions of the Selected books of Ulloor 1500 pages	01.01.2008	31.03.2008	30000
	Total			82500

Estimates for Second Phase: 2008-09

Item	Specification	From	To	Estimate Rs.
Cataloguing/ Indexing	Indexing the articles in all the old and rare journals available in the UMRI. Approximately 5000 articles	01. 01.2008	31. 03.2008	30000
Digital Archiving	All the old and rare journals available in the UMRI. Approximately 50000pages	01.01.2008	30.06.2008	500000
Digital Archiving	All the manuscripts, pictures, published books etc of Ulloor available at UMRI or accessible to it. Approximately 10000pages	01.06.2008	30.09 2008	100000
	Total			630000

Estimates for Third Phase: 2009-10

Item	Specification	From	To	Estimate Rs.
Digital Archiving	All the remaining old and rare documents of the personal collection of Ulloor and others held by the UMRI Approximately 25000 pages	01.01.2009	30.06.2009	250000
ICT Infrastructure	CDServer/Juke box/Server/Computer Communication Stack/Software	01.07.2009	31.03.2010	1000000
	Total			1250000

APPENDIX -IV**Equipments/Software Required****Hardware**

1. Server as per latest specifications	One
2. Workstations: Pentium IV with essential components	four
3. CDROM Jukebox with 200 Drive Capacity and software	One
4. CD/DVD Writer	One
5. Planetary Scanner (for Digital Archiving Lab)	One
6. Flat bed scanner	Two
7. Digital Camera	One

Software

10. Windows 2000 Server Five user	One
11. Windows 2000 CDROM	One
12. MSOffice Academic Version	One
13. Adobe Suite	One
14. DTP Software for Original Malayalam Script	One
15. Software packages for digital Library Development. Set	One
16. Cables/Other minor components	

Audio Visual Equipments Required for Audio-Visual

1. Television set 73CM	One
2. DVD player	One
3. Digital Com coder/Video Camera (For lab only)	One
5. LCD Projector for TV and Multimedia Computer	One

Appendix- V

Detailed Specification of the Computers and Peripherals Recommended by CSIS & CIRDA for Ulloor Digital Archive

1. Workstations: Compaq Presario SR1932IL PC (RQ506AA)

Processor type	Intel® Core™ 2 Duo processor E6300 • 1.86 GHz, 2MB Advanced Transfer Cache, 1066 MHz
Operating system installed	Windows Vista Home Premium
Chipset	i965P
Standard memory	512 MB
Memory type	DDR2
Internal hard disk drive	160 GB
Hard disk controller	Serial ATA hard drive
Hard disk drive speed	(7200 rpm)
Optical drive type	SuperMulti SATA DVD Drive
Optical drive speed	SuperMulti SATA Drive with Lightscribe Technology, Double Layer (8.5GB) 16xDVD+R, 16xDVD-R, 8xDVD+RW, 6xDVD-RW, 8xDVD+R DL, 4xDVD-R DL, 5xDVD-RAM, 16xDVD-ROM; 40xCDR, 24xCDRW, 40xCDROM
Memory card device	Not Applicable
Modem	ITU V.92 K56 flex modem, data/fax only (33.6Kbps send/download up to 56Kbps/14.4Kbps fax)
Network interface	Integrated 10/100 BaseT network interface (Broadband Ready)
Video capture interface	IEEE 1394 FireWire® Interface
Video adapter	NVIDIA GeForce 7300LE 3D PCI-Express Graphics (with TV-out port)
Video RAM	TurboCache supporting up to 256MB* memory (*Graphics card uses part of the total system memory (RAM) for graphics performance. System memory dedicated to graphics performance is not available for other use by other programs.)
Internal audio	Integrated Intel® High Definition Audio, 7.1 Surround Sound Ready
Audio connectors	2 Line-in (1 in front); 1 Line-out; 2 Microphones; 1 Headphone; Side Spkr L/R; Rear Spkr L/R; Central/Subwoofer
Keyboard	Compaq Multimedia Easy Access Internet Keyboard and Presario PS/2 optical scroller mouse
External drive bays	External (2) 5.25", (2) 3.5"; Internal (1) 3.5" (External (1) 5.25", External (1) 3.5" free)
Expansion slots	1 PCI Express, 3 PCI (2 PCI free)
External I/O ports	6 USB 2.0 ports (2 front, 4rear); 2 IEEE-1394 ports; 2 PS/2; 1 x SPDIF-Out port, SPDIF-in port; 1 LAN

2. Recommended Printing System: HP LaserJet 5200 Printer (Q7543A)

Printing System	
Print Technology	
Print speed (black, normal quality, A4)	Up to 35 ppm
First page out (black, A4)	< 10 sec
Processor speed	460 MHz
Processor type	MIPS
Print quality (black, best quality)	Up to 1200 x 1200 dpi
Pages per month	Up to 65,000
Paper handling/ Media	
Standard paper trays	2
Maximum number of paper trays	3
Media types supported	Paper (plain, preprinted, letterhead, prepunched, bond, recycled, colour, rough, toughpaper), transparencies, labels, envelopes, cardstock, vellum
Standard input capacity (sheets)	Up to 350
Duplex print options	Automatic (optional)
Paper handling standard/input	100-sheet multipurpose tray, 250-sheet input tray
Paper handling optional/input	Optional 500-sheet input tray 3
Standard media sizes	A3, A4, A4 rotated, A5, A6, B4 (JIS), B5, B5 (JIS), B6 (JIS), C5, DL, executive, executive (JIS), legal, letter, letter rotated, Monarch, postcard (JIS), DPostcard (JIS), RA3, statement, 8K, 16K, #10, 8.5 x 13 inch, 11 x 17 inch
Custom media sizes	Tray 1: 76.2 x 127 mm to 312 x 470 mm; Tray 2: 76.2 x 127 mm to 297 x 431.8 mm; Tray 3: 76.2 x 127 mm to 297 x 431.8 mm
Media weights by paper path	Tray 1: 60 to 199 g/m ² ; Tray 2, 3: 60 to 120 g/m ²
Memory/print Languages/Typefaces	
Standard memory	48 MB
Maximum memory	512 MB
Memory slots	One 100-pin DDR DIMM slot
Memory card compatibility	Two open industry-standard CompactFlash™ slots
Hard disk capacity	Optional, 20 GB HP High-performance EIO hard disk
Standard printer languages	HP PCL 6, HP PCL 5e, HP Postscript Level 3 emulation
Typefaces	103 built-in scalable PCL, 93 internal PS
Connectivity	
Standard connectivity	Hi-Speed USB 2.0 port, IEEE-1284 parallel port, one open EIO slot
Optional connectivity	HP Jetdirect Internal Print Servers, HP Jetdirect External Print Servers, HP Wireless Print Servers
Compatible operating systems	Windows® 98, Me, 2000, XP Home, XP Professional, Server 2003; Mac OS X, 10.2, 10.3, 10.4, and higher
Compatible network operating systems	Via HP Jetdirect print servers: Windows® 98, 2000, XP Home, XP Professional, Server 2003; NetWare; UNIX; AppleTalk; Linux; HP-UX; LocalTalk
Other Technical Information	
Control panel	32 x 160 backlit graphical display; 8 buttons (Back arrow, Down arrow, Help, Menu, Pause job, Start, Status, Up arrow); 3 LEDs (Attention, Data, Ready)
Dimensions (W x D x H)	490 x 563 x 275 mm

3. Recommended Scanner: HP Scanjet 8270 Document Flatbed Scanner (L1975A)

Scan System	Up to 4800 dpi
Optical scanning resolution	
Hardware scanning resolution	Up to 4800 x 4800 dpi
Enhanced scanning resolution	Unlimited
Bit depth	48-bit
Gray scale levels	256
Image scaling or enlargement range	10 to 2000% in 1% increments
Scan speed in preview mode	4 secs
Scan speed footnote	Scan speeds vary according to complexity of the document and the specifications of the connected PC/MAC
Scan speed (black and white drawing)	Up to 20 sec
Scan speed (ADF)	Up to 25 ppm/50ipm
Scan speed (ADF, A4)	Up to 25 ppm/50ipm
Scan speed (OCR, A4)	<50 secs
Maximum scanning size	216 x 356 mm
Printer and Smart Features	
Transparency adapter	Built-in Transparent Materials Adapter (TMA)
Auto document feeder capacity	Standard, 50 sheets
Button functions	Scan Document, Scan Picture, Edit Text, Save to PDF, E-mail, Copy, Copy Quantity, Copy Colour/Black and White, Custom Configuration Options, Power Save, Cancel
Other Technical Information	
Scan input modes	Front-panel with quick scan buttons (copy, Edit text (OCR), E-mail, File document, Scan document, Scan picture); HP Photosmart software; user application via TWAIN/ISIS; TMA; 25 ppm ADF
Scan file format	Windows: BMP, JPEG, TIFF, TIFF compressed, PNG, PCX, Flashpix (FPX), PDF, PDF searchable, RTF, HTM, TXT; Macintosh: TIFF, PICT, JPEG, GIF, FlashPix, Plain Text, PDF, HTML, Rich Text
Compatible operating systems	Microsoft® Windows® XP, NT 4.0 (optional with SCSI kit); Certified for Windows Vista™; Mac OS 9.1 or OS X 10.1.2/10.2 or above
Optional connectivity	SCSI module for the scanner
Standard connectivity	Hi-Speed USB - compatible with USB 2.0 specifications
External I/O ports	1 Hi-Speed USB - compatible with USB 2.0 specifications, SCSI optional
Energy Star certified	Yes

META DATA

Title: Ulloor Digital Archives: Project Report, Version: 2.5

Author /s: Dr. R. Raman Nair

Publisher/s: Centre for South Indian Studies, A4, Ganga Nagar, Trivandrum 695043, Kerala, India. Website:<http://www.geocities.com/csistvm>, Email: csistvm@yahoo.com

Year: February 2007

Abstract: : A Project Report on establishing Ulloor Digital Archives at Mahakavi Ulloor Memorial Library and Research Institute (UMRI), Trivandrum. The project is intended to use ICT to conserve the manuscripts and heritage items related to Mahakavi Ulloor S. Parameswara Iyer and make them accessible to the people. The personal collection of rare books, journals and manuscripts which formed the main source of research for works like his magnum opus the monumental history of Malayalam literature presently maintained by UMRI will form the base of the Digital Archives. UMRI will publish in electronic form selected rare books and journals from the collection as part of the project. Digital Audio of the recitations of his poems will also be published. Through this programme UMRI will be able to bring into focus in the hearts of the people the life and work of the scholar saint who has devoted himself to Malayalam language and literature. Digital Archives when completed will offer broad public access to the complete works of Mahakavi Ulloor and a wide range of rare and antique literary historical and cultural documents that came from his personal collection; as a contribution to education and research. This will also be a project that contributes to the conservation of our cultural heritage.

Keywords: Informatics Research, Maha Kavi Ulloor, Digitization Archiving India, Kerala, Library information, Culture, heritage, conservation.

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