**REQUIREMENTS SPECIFICATION**

System analyst tasks to a variety of persons to gather details about the business process and their opinions of why things happen as they do and their ideas for changing the process. These can be done through questionnaires, details investigation, observation, collection of samples etc. As the details are collected, the analyst studies the requirements data to identify the features the new system should have, including both the information the system produces and operational features such as processing controls, response times, and input output methods.

Requirement specification simply means, “Figuring out what to make before you make it”. It determines what people need before you start developing a product for them. Requirement definition is the activity of translating the information gathered in to a document that defines a set of requirements. These should accurately reflect what consumer wants. It is an abstract description of the services that the system should provide and the constraints under the system must operate. This document must be written for that the end user and the stake holder can understand it.

The notations used for requirements definition should be based on natural languages, forms and simple intuitive diagrams. The requirements fall into two categories: functional requirements and non-functional requirements.

The requirements of specification of the proposed system are as follows:

* Arduino C++
* Embedded C

**OPERATING ENVIRONMENT**

**4.1 HARDWARE REQUIREMENTS**

Processor : Dual Core or above

RAM : 4GB

Hard Disk : 500GB

* 1. **SOFTWARE REQUIREMENTS**

Operating System : Windows 10

Language : C++, Embedded C

DB : Cloud

Server : Cloud Built-in Server

IDE : Arduino

**DESIGN**

**5.1 SYSTEM DESIGN**

System design is a reduction of an entire system by studying the various operations performed and their relationships within the system and the requirements of its success. One aspect of design is defining the boundaries of the system and determining whether or not the candidate system should consider other related system.

System can be defined, as an orderly grouping of interdependent components can be simple or complex. The most creative and challenging phase of the system life cycle is system design. The term design describes a final system and the process by which it is developed. It refers to the technical specifications that will be applied in implementing the candidate system. It also includes the construction of programs and program testing.

The first step in the system design is to determine how the output is to be produced and in what format. Samples of the output and the inputs are also presented. In the second step, input data and master files are to be designed to meet requirement of the proposed output .The processing phase’s system’s objectives and complete documentation.

System design has two phases:

* Logical
* Physical

The logical design reviews the present physical system, prepares the input and output and also prepares a logical design walk- through. We have to deal with how to take entries required and whether and how to process the user data. Also we have to deal with how to present the data in an informative and appealing format. This design also involves the methodology to store, modify and retrieve data from the data base as per the requirement. Physical design maps out the details of the physical system, plans the system implementation, devices a test and implementation plan and new hardware and software. We have to decide how and where to store the input data and how to process it so as to present it to the user in an easy, informative and attractive manner.

**5.2 Data Flow Diagram**

A Data Flow Diagram, (DFD) or Bubble chart is s a network that describes the flow of a data and processes that change, or transform data throughout the system. This network is constructed by using a set of symbols that can do not imply a physical implementation. It is a graphical tool for structures analysis of the system requirements. DFD models a system by using external entities from which data flows to a process which transforms data and creates, outputs data flow which goes which goes to other processes or external entities of files. Data in files may also flow to processes as inputs.

DFD’s can be hierarchically organized which help in partitioning and analyzing large systems. As a first step, one DFD can depict an entire system which gives the system overview. It is called Context Diagram or level 0 DFD. The Context diagram can be further expanded. The successive expansion of the DFD from the DFD from the context diagram to those giving more details is known as levelling of DFD. Thus a top down approach is used starting with an overview and working out the details.

The main merit of DFD is that it can provide an overview of the system requirements, what data a system would process, what transformations of data are done, what files are used and where results flow.

**Basic data flow symbols**

A process represents transformation where incoming data flows are changed into outgoing data flows.A data flow is route, which enables packets of data to travel from one point to another. Data may flow from a source to a processor and from data store or process. An arrow line depicts the flow, with arrow head pointing in the direction of the flow.

A data source is a repository of data that is to be stored for the use by one or more process may be simple as buffer or queue or sophisticated as uses the content of store and does not alter it, the arrow head goes only from the store to the process. If a process alters the details in the store then a double headed arrow is used.

The notations used in this project DFD is given below:

: Represents source or destination of data

: Represents a process

: Represents data flow

: Represent file

: Represent data warehouse

**5.3 INPUT OUTPUT DESIGN**

The input design is the process of converting the user-oriented description of inputs into a programmer-oriented specification. The objective of input design is to create an input layout that is easy to follow and prevents the user from receiving fake news.

The goal designing input data is to make the detection of fake news easy and free from errors as possible. For providing a good input design for the application easy data input and selection feature and adopted.

Computer output is the most important one to the user. A major form of the output is the display of the information gathered by the system and the servicing the user requests to the system. Output generally refers to the results or information that is generated by the system.

It can be in the form of textual and image. Since some of the users of the system may not operate the system, but merely use the output from the system to aid them in decision-making, much importance is given to the output design.

Currently we are giving textual data and cut off images as input and desired output we are getting is accuracy of textual data and result of real or fake image.

**TOOLS AND PLATFORM**

**Arduino UNO**

* **Arduino Uno** is a microcontroller board developed by Arduino.cc which is an open-source electronics platform mainly based on AVR microcontroller Atmega328.
* First Arduino project was started in Interaction Design Institute Ivrea in 2003 by David Cuartielles and Massimo Banzi with the intention of providing a cheap and flexible way to students and professional for controlling a number of devices in the real world.
* The current version of Arduino Uno comes with USB interface, 6 analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output.
* It allows the designers to control and sense the external electronic devices in the real world.
* This board comes with all the features required to run the controller and can be directly connected to the computer through USB cable that is used to transfer the code to the controller using IDE (Integrated Development Environment) software, mainly developed to program Arduino. IDE is equally compatible with Windows, MAC or Linux Systems, however, Windows is preferable to use. Programming languages like C and C++ are used in IDE.
* Apart from USB, battery or AC to DC adopter can also be used to power the board.
* Arduino Uno boards are quite similar to other boards in Arduino family in terms of use and functionality, however, Uno boards don’t come with FTDI USB to Serial driver chip.
* There are many versions of Uno boards available, however, Arduino Nano V3 and Arduino Uno are the most official versions that come with Atmega328 8-bit AVR Atmel microcontroller where RAM memory is 32KB.
* When nature and functionality of the task go complex, Micro SD card can be added in the boards to make them store more information.

