

INTRODUCTION

1.1 ABOUT THE PROJECT

Children are the greatest asset of each nation. The future of any country depends upon the right upbringing of its children. India is the second populous country in the world and children represent a significant percentage of total population. But unfortunately a large number of children go missing every year in India due to various reasons including abduction or kidnapping, run-away children, trafficked children and lost children. A deeply disturbing fact about India's missing children is that while on an average 174 children go missing every day, half of them remain untraced. Children who go missing may be exploited and abused for various purposes. As per the National Crime Records Bureau (NCRB) report which was cited by the Ministry of Home Affairs (MHA) in the Parliament (LS Q no. 3928, 20-03- 2018), more than one lakh children (1,11,569 in actual numbers) were reported to have gone missing till 2016, and 55,625 of them remained untraced till the end of the year. Many NGOs claim that estimates of missing children are much higher than reported. Mostly missing child cases are reported to the police. The child missing from one region may be found in another region or another state, for various reasons. So even if a child is found, it is difficult to identify him/her from the reported missing cases. A framework and methodology for developing an assistive tool for tracing missing child is described in this paper. An idea for maintaining a virtual space is proposed, such that the recent photographs of children given by parents at the time of reporting missing cases is saved in a repository. The public is given provision to voluntarily take photographs of children in suspected situations and uploaded in that portal. Automatic searching of this photo among the missing child case images will be provided in the application. This supports the police officials to locate the child anywhere in India. When a child is found, the photograph at that time is matched against the images uploaded by the Police/guardian at the time of missing. Sometimes the child has been missing for a long time. This age gap reflects in the images since aging affects the shape of the face and texture of the skin. The feature discriminator invariant to aging effects has to be derived. This is the challenge in missing child identification compared to the other face recognition systems. Also facial appearance of child can vary due to changes in pose, orientation, illumination, occlusions, noise in background etc. The image taken by public may not be of good quality, as some of them may be captured from a distance without the knowledge of the child. A deep learning [1] architecture considering all these constrain is designed here. The proposed system is comparatively an easy, inexpensive and reliable method compared to other biometrics like finger print and iris recognition systems.

1.2 OBJECTIVE

The major objective is **Missing Child Identification System using Deep Learning and Multiclass SVM**

1.3 SCOPE OF THE PROJECT

Children are the greatest asset of each nation. The future of any country depends upon the right upbringing of its children. India is the second populous country in the world and children represent a significant percentage of total population. But unfortunately a large number of children go missing every year in India due to various reasons including abduction or kidnapping, run-away children, trafficked children and lost children. A deeply disturbing fact about India's missing children is that while on an average 174 children go missing every day, half of them remain untraced. Children who go missing may be exploited and abused for various purposes. As per the National Crime Records Bureau (NCRB) report which was cited by the Ministry of Home Affairs (MHA) in the Parliament (LS Q no. 3928, 20-03- 2018), more than one lakh children (1,11,569 in actual numbers) were reported to have gone missing till 2016, and 55,625 of them remained untraced till the end of the year. Many NGOs claim that estimates of missing children are much higher than reported.

LITERATURE SURVEY

Deep learning allows computational models that are composed of multiple processing layers to learn representations of data with multiple levels of abstraction. These methods have dramatically improved the state-of-the-art in speech recognition, visual object recognition, object detection and many other domains such as drug discovery and genomics. Deep learning discovers intricate structure in large data sets by using the back propagation algorithm to indicate how a machine should change its internal parameters that are used to compute the representation in each layer from the representation in the previous layer. Deep convolutional nets have brought about breakthroughs in processing images, video, speech and audio, whereas recurrent nets have shone light on sequential data such as text and speech.

"Deep Face Recognition," in British Machine Vision Conference the goal of this paper is face recognition -- from either a single photograph or from a set of faces tracked in a video. Recent progress in this area has been due to two factors: (i) end to end learning for the task using a convolutional neural network (CNN), and (ii) the availability of very large scale training datasets. We make two contributions: first, we show how a very large scale dataset can be assembled by a combination of automation and human in the loop, and discuss the trade off between data purity and time; second, we traverse through the complexities of deep network training and face recognition to present methods and procedures to achieve comparable state of the art results on the standard LFW and YTF face benchmarks.

Conventional Neural Networks for MATLAB",ACM International Conference on Multimedia, Brisbane, October 2015. MatConvNet is an implementation of Convolutional Neural Networks (CNNs) for MATLAB. The toolbox is designed with an emphasis on simplicity and flexibility. It exposes the building blocks of CNNs as easy-to-use MATLAB functions, providing routines for computing linear convolutions with filter banks, feature pooling, and many more. In this manner, MatConvNet allows fast prototyping of new CNN architectures; at the same time, it supports efficient computation on CPU and GPU allowing to train complex models on large datasets such as ImageNet ILSVRC. This document provides an overview of CNNs and how they are implemented in MatConvNet and gives the technical details of each computational block in the toolbox.

SYSTEM ANALYSIS

EXISTING SYSTEM:

Earliest methods for face recognition commonly used computer vision features such as HOG, LBP, SIFT, or SURF [2-3]. However, features extracted using a CNN network for getting facial representations gives better performance in face recognition than handcrafted features.

PROPOSED SYSTEM:

Here we propose a methodology for missing child identification which combines facial feature extraction based on deep learning and matching based on support vector machine. The proposed system utilizes face recognition for missing child identification.

DETAILS:

➤ **Impact on Environment**

Impact on environment (not OS or SW used), Examples – Reduction in global warming, reduce pollution, simplicity of usage, time reduction etc.,

➤ **Safety**

Impact on various areas mentioned (but not limited to) Security (data, network, information), privacy etc.

➤ **Ethics**

General SW ethics for building an application or solution like (but not limited to) – does not harm any person (physically or virtually), securing privacy information of the resources using application (secure login, not exposing personal details in any form) etc.

➤ **Cost**

- Cost of development, usage, maintenance etc.,
- Cost reduction due to implementation of the project in production

➤ **Type**

Standalone

➤ 3.2.7 Standards

STRUCTURE OF PROJECT (SYSTEM ANALYSIS)

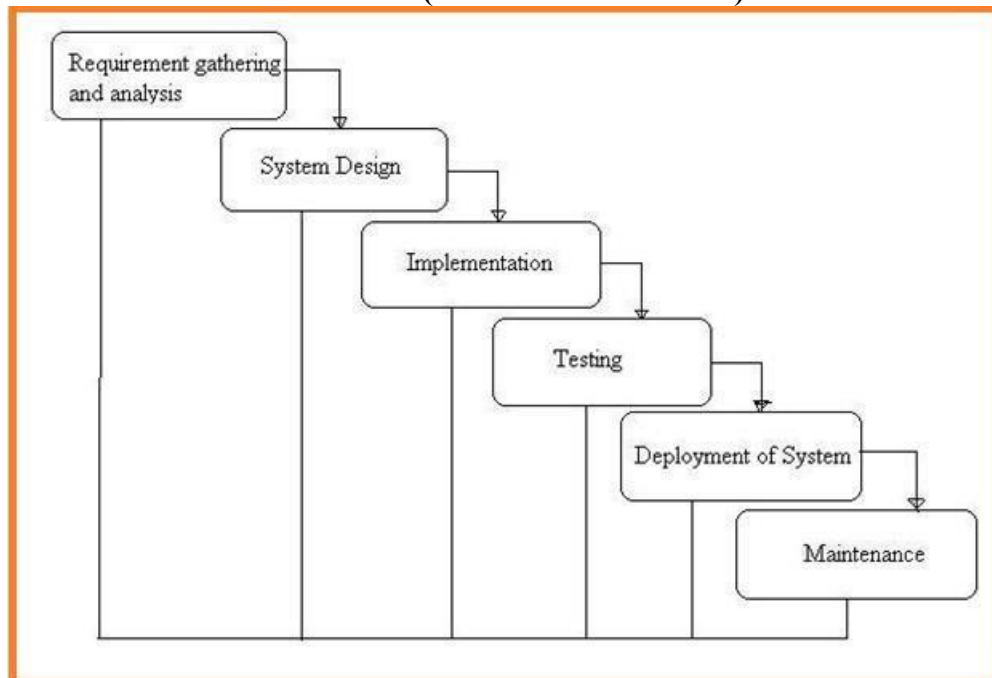


Fig: 3.2.7 Project SDLC

- Project Requisites Accumulating and Analysis
- Application System Design
- Practical Implementation
- Manual Testing of My Application
- Application Deployment of System
- Maintenance of the Project

FEASIBILITY STUDY:

Preliminary investigation examines project feasibility, the likelihood the system will be useful

to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- Economical Feasibility
- Operational Feasibility
- Technical Feasibility

REQUIREMENTS SPECIFICATION

FUNCTIONAL REQUIREMENTS

In software engineering and systems engineering, a **functional requirement** defines a function of a system or its component, where a function is described as a specification of behaviour between outputs and inputs.

Functional requirements may involve calculations, technical details, data manipulation and processing, and other specific functionality that define what a system is supposed to accomplish. Behavioural requirements describe all the cases where the system uses the functional requirements, these are captured in use cases. Functional requirements are supported by non-functional requirements (also known as "quality requirements"), which impose constraints on the design or implementation (such as performance requirements, security, or reliability). Generally, functional requirements are expressed in the form "system must do <requirement>," while non-functional requirements take the form "system shall be <requirement>." The plan for implementing functional requirements is detailed in the system design, whereas *non-functional* requirements are detailed in the system architecture. As defined in requirements engineering, functional requirements specify particular results of a system. This should be contrasted with non-functional requirements, which specify overall characteristics such as cost and reliability. Functional requirements drive the application architecture of a system, while non-functional requirements drive the technical architecture of a system.

In some cases a requirements analyst generates use cases after gathering and validating a set of functional requirements. The hierarchy of functional requirements collection and change, broadly speaking, is: user/stakeholder request → analyse → use case incorporate. Stakeholders make a request; systems engineers attempt to discuss, observe, and understand the aspects of the requirement; use cases, entity relationship diagrams, and other models are built to validate the requirement; and, if documented and approved, the requirement is implemented/incorporated.[6] Each use case illustrates behavioural scenarios through one or more functional requirements. Often, though, an analyst will begin by eliciting a set of use cases, from which the analyst can derive the functional requirements that must be implemented to allow a user to perform each use case.

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NON-FUNCTIONAL REQUIREMENT

It specifies the quality attribute of a software system. They judge the software system based on

Responsiveness, Usability, Security, Portability and other non-functional standards that are critical to the success of the software system. Example of nonfunctional requirement, *“how fast does the website load?”* Failing to meet non-functional requirements can result in systems that fail to satisfy user needs. Non-functional Requirements allows you to impose constraints or restrictions on the design of the system across the various agile backlogs. Example, the site should load in 3 seconds when the number of simultaneous users are > 10000. Description of non-functional requirements is just as critical as a functional requirement.

Advantages of Non-Functional Requirement:

Benefits/pros of Non-functional testing are:

- The nonfunctional requirements ensure the software system follow legal and compliance rules.
- They ensure the reliability, availability, and performance of the software system
- They ensure good user experience and ease of operating the software.
- They help in formulating security policy of the software system.
- Usability requirement
- Serviceability requirement
- Manageability requirement
- Recoverability requirement
- Security requirement
- Data Integrity requirement
- Capacity requirement
- Availability requirement
- Scalability requirement
- Interoperability requirement
- Reliability requirement
- Maintainability requirement

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- Regulatory requirement
- Environmental requirements



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Disadvantages of Non-functional requirement:

Cons/drawbacks of Non-functional requirement are:

- None functional requirement may affect the various high-level software subsystem
- They require special consideration during the software architecture/high-level design phase which increases costs.
- Their implementation does not usually map to the specific software sub-system,
- It is tough to modify non-functional once you pass the architecture phase.

KEY LEARNING

- A non-functional requirement defines the performance attribute of a software system.
- Types of Non-functional requirement are Scalability Capacity, Availability, Reliability, Recoverability, Data Integrity, etc.
- Example of Non-Functional Requirement is Employees never allowed to update their salary information. Such attempt should be reported to the security administrator.
- Functional Requirement is a verb while Non-Functional Requirement is an attribute
- The advantage of Non-functional requirement is that it helps you to ensure good user experience and ease of operating the software the biggest disadvantage of Non-functional requirement is that it may affect the various high-level software subsystems.

SYSTEM STUDY

ECONOMIC FEASIBILITY:

A system can be developed technically and that will be used if installed must still be a good investment for the organization. In the economical feasibility, the development cost in creating the system is evaluated against the ultimate benefit derived from the new systems. Financial benefits must equal or exceed the costs.

The system is economically feasible. It does not require any addition hardware or software. Since the interface for this system is developed using the existing resources and technologies available at NIC, there is nominal expenditure and economical feasibility for certain.

OPERATIONAL FEASIBILITY:

Proposed projects are beneficial only if they can be turned out into information system. That will meet the organization's operating requirements. Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following: -

- Is there sufficient support for the management from the users?
- Will the system be used and work properly if it is being developed and implemented?
- Will there be any resistance from the user that will undermine the possible application benefits?

This system is targeted to be in accordance with the above-mentioned issues. Beforehand, the management issues and user requirements have been taken into consideration. So there is no question of resistance from the users that can undermine the possible application benefits.

The well-planned design would ensure the optimal utilization of the computer resources and would help in the improvement of performance status.

TECHNICAL FEASIBILITY :

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- Does the necessary technology exist to do what is suggested?
- Do the proposed equipments have the technical capacity to hold the data required to use the new system?
- Will the proposed system provide adequate response to inquiries, regardless of the number or location of users?

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- Can the system be upgraded if developed?

- Are there technical guarantees of accuracy, reliability, ease of access and data security?

Earlier no system existed to cater to the needs of 'Secure Infrastructure Implementation System'. The current system developed is technically feasible. It is a webbased user interface for audit workflow at NIC - CSD. Thus it provides an easy access to the users. The database's purpose is to create, establish and maintain a workflow among various entities in order to facilitate all concerned users in their various capacities or roles. Permission to the users would be granted based on the roles specified. Therefore, it provides the technical guarantee of accuracy, reliability and security. The software and hardware requirements for the development of this project are not many and are already available in-house at NIC or are available as free as open source. The work for the project is done with the current equipment and existing software technology. Necessary bandwidth exists for providing a fast feedback to the users irrespective of the number of users using the system.

SYSTEM DESIGN

SYSTEM SPECIFICATIONS

Hardware Requirements:

- System : Pentium i3
- Hard Disk : 500 GB.
- Monitor : 14' Colour Monitor.
- Mouse : Optical Mouse.
- Ram : 4 GB.

Software Requirements:

- Operating system : Windows 8/10.
- Coding Language : PYTHON
- Software : Jupyter

UML DIAGRAMS

UML stands for Unified Modelling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group.

The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML is comprised of two major components: a Meta-model and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modelling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software system, as well as for business modelling and other non-software systems.

The UML represents a collection of best engineering practices that have proven successful in the modelling of large and complex systems. The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

GOALS:

The Primary goals in the design of the UML are as follows:

- Provide users a ready-to-use, expressive visual modelling Language so that they can develop and exchange meaningful models.
- Provide extendibility and specialization mechanisms to extend the core concepts.
- Be independent of particular programming languages and development process.
- Provide a formal basis for understanding the modelling language.
- Encourage the growth of OO tools market.
- Support higher level development concepts such as collaborations, frameworks, patterns and components.
- Integrate best practices.

USE CASE DIAGRAM

A use case diagram in the Unified Modelling Language (UML) is a type of behavioural diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

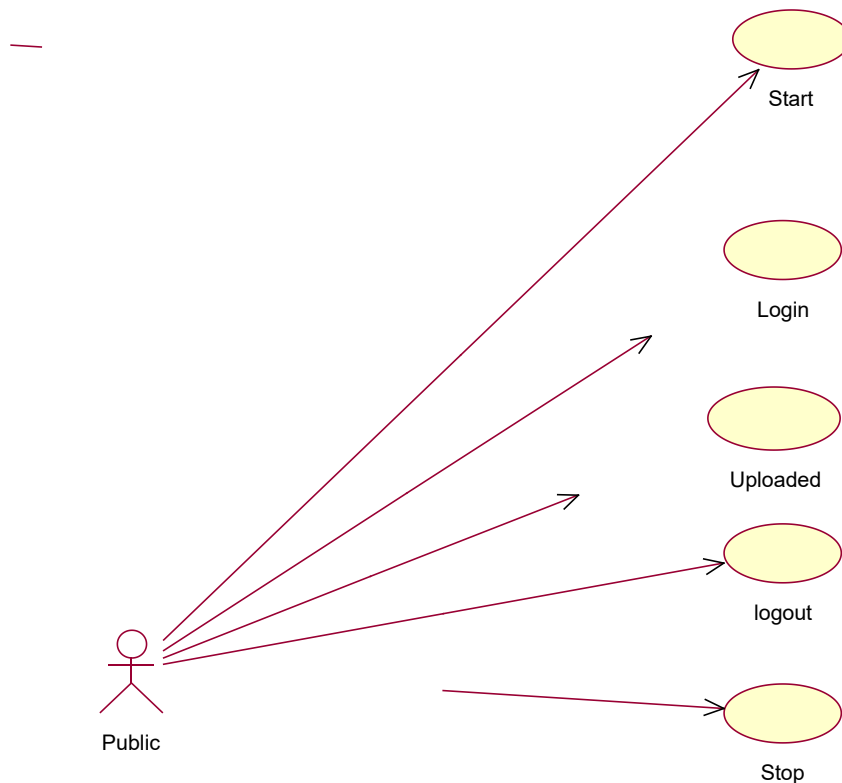


Fig:Use case diagram

CLASS DIAGRAM

In software engineering, a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.

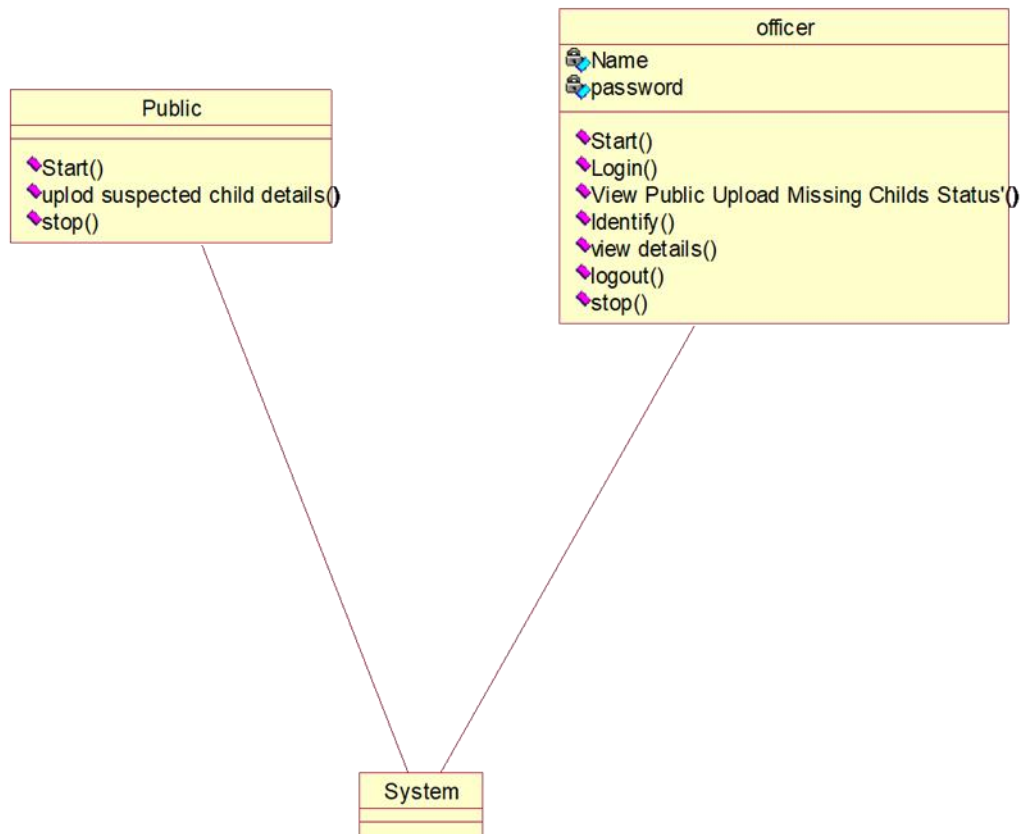


Fig: Class Diagram

SEQUENCE DIAGRAM

A sequence diagram in Unified Modelling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

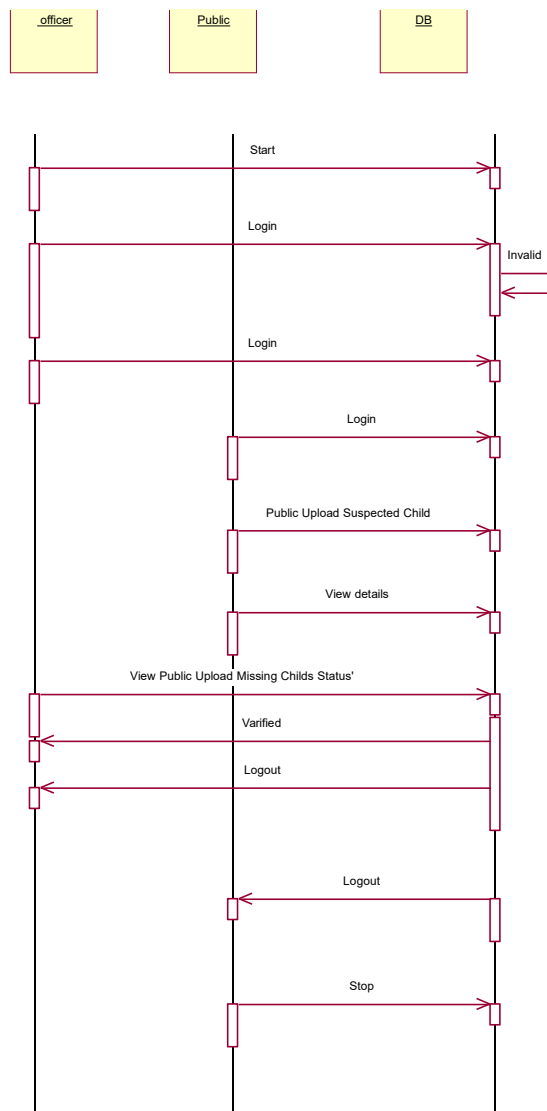


Fig : Sequence diagram

TESTING

Definition:

Software testing is a process to help identifying correctness, security and quality of developed computer software

Types of Testing:

Re- testing:

It is a process in which testing is performed on some functionality which is already tested before to make sure that the defects are reproducible and to rule out the environment issues if at all any defects are there.

Static Testing:

It is the testing, which is performed on some application which is not being executed.
Ex:GUI ,Document Testing

Dynamic Testing:

It is the testing, which is performed on some application which is not being executed.
Ex:Functional Testing

Alpha Testing:

It is a type of user acceptance testing , which is conducted on an application when it is just before released to the customer .

Beta - Testing:

It is a type UAT that is considered on an application when it released to the customer , when deployed into the real time environment and being accessed by the real time users.

SYSTEM IMPLEMENTATION

MODULES

- Data Collection
- Data Pre processing
- Training And Testing
- Modelling
- Predicting

Missing Child Identification System using Deep Learning and Multiclass SVM

In this paper author is describing concept to identify missing children by using Deep Learning and Multiclass SVM classifier and to implement this project author has used below modules

- 1) Using public dataset of missing children's called FGNET is used to train deep learning CNN prediction model. After training model whenever public upload any suspected child image then this model will check in trained model to detect whether this child is in missing database or not. This detected result will store in database and whenever want official persons will login and see that detection result.
 - 2) SVM Multiclass classifier use to extract face features from images based on age and other facial features and then this detected face will input to CNN model to predict whether this face child exists in image database or not.
- e taken into consideration. As part of technical build-up many components of the networking system will be generic in nature so that future projects can either use or interact with this. The future holds a lot to offer to the development and refinement of this project.

CODING :**Index page :**

```
{% load static %}
<html>
<head>
<title>Missing Child App</title>
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<link rel="stylesheet" type="text/css" href="{% static 'style.css' %}" />
</head>
<body background="C:\Users\PADAV\Desktop\Child detection\background2.jpg">
<div id="wrapper">
    <div id="header">
        <div id="logo">
            <center><font size="4" color="yellow">Missing Child Identification
System using Deep Learning and Multiclass SVM</font></center>
        </div>
        <div id="slogan">

            </div>
        </div>
        <div id="menu">
            <ul><center>
                <li><a href="login">Home</a></li>
                <li><a href="{% url 'Login' %}">Official Login</a></li>
                <li><a href="{% url 'Upload' %}">Public Upload Suspected Child</a></li>
            </center></ul>
            <br class="clearfix"/>
        </div>
        <div id="splash">
            
        </div>
        <br/>
        <p align="justify"><font size="3" style="font-family: Comic Sans MS"
color='black'>
```

Abstract-In India a countless number of children are reported missing every year. Among the missing child cases a large percentage of children remain untraced. This paper presents a novel use of deep learning methodology for identifying the reported missing child from the photos of multitude of children available, with the help of face recognition. The public can upload photographs of suspicious child into a common portal with landmarks and remarks. The photo will be automatically compared with the registered photos of the missing child from the repository.</p>
<p align="justify">
Classification of the input child image is performed and photo with best match will be selected from the database of missing children.

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For this, a deep learning model is trained to correctly identify the missing child from the missing child image database provided, using the facial image uploaded by the public. The Convolutional Neural Network (CNN), a highly effective deep learning technique for image based applications is adopted here for face recognition.</p>

 Face descriptors are extracted from the images using a pre-trained CNN model VGG-Face deep architecture. Compared with normal deep learning applications, our algorithm uses convolution network only as a high level feature extractor and the child recognition is done by the trained SVM classifier.

</p>
</body>
</html>

Login Page:

```
{% load static %}  
<html>  
<head>  
<title>Missing Child App</title>  
<meta http-equiv="content-type" content="text/html; charset=utf-8" />  
<link rel="stylesheet" type="text/css" href="{% static 'style.css' %}" />  
<script LANGUAGE="Javascript" >  
function validate(){  
    var x=document.forms["f1"]["username"].value;  
    var y=document.forms["f1"]["password"].value;  
  
    if(x == null || x==""){  
        window.alert("Username must be enter");  
        document.f1.username.focus();  
        return false;  
    }  
    if(y == null || y==""){  
        window.alert("Password must be enter");  
        document.f1.password.focus();  
        return false;  
    }  
    return true;  
}  
</script>  
</head>  
<body>  
<div id="wrapper">  
    <div id="header">  
        <div id="logo">  
            <center><font size="4" color="yellow">Missing Child Identification  
System using Deep  
Learning and Multiclass SVM</font></center>  
        </div>  
        <div id="slogan">
```

VITW III DCME

```
</div>
</div>
<div id="menu">
  <ul><center>
    <li><a href="{% url 'index' %}">Home</a></li>
    <li><a href="{% url 'Login' %}">Official Login</a></li>
    <li><a href="{% url 'Upload' %}">Public Upload Suspected Child</a></li>

  </center></ul>
<br class="clearfix" />
</div>

<div id="splash">
  
</div>
<center>
<form name="f1" method="post" action="{% url 'OfficialLogin' %}" OnSubmit="return
validate()">
  {% csrf_token %}<br/>
<h3><b>Official Login Screen</b></h3>

  <font size="" color="black"><center>{{ data }}</center></font>

  <table align="center" width="80" >
    <tr><td><b>Username</b></td><td><input type="text" name="t1"
style="font-family: Comic Sans MS" size="30"/></td></tr>

    <tr><td><b>Password</b></td><td><input type="password" name="t2"
style="font-family: Comic Sans MS" size="30"/></td></tr>

    <tr><td></td><td><input type="submit" value="Login">
</td>
</tr>
</table>
</div>

</div>

<br/><br/><br/><br/><br/><br/>

</body>
</html>
```

Official login:

```
{% load static %}
<html>
<head>
<title>Missing Child App</title>
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
```

VITW III DCME

```
<link rel="stylesheet" type="text/css" href="{% static 'style.css' %}" />
</head>
<body>
<div id="wrapper">
    <div id="header">
        <div id="logo">
            <center><font size="4" color="yellow">Missing Child Identification
System using Deep
Learning and Multiclass SVM</font></center>
        </div>
        <div id="slogan">

    </div>
    </div>
    <div id="menu">
        <ul>
            <li><a href="{% url 'ViewUpload' %}">View Public Upload Missing Childs
Status</a></li>
            <li><a href="{% url 'index' %}">Logout</a></li>
        </ul>
    </div>
    <div class="hbg"></div>
    <p align="justify"><font size="3" style="font-family: Comic Sans MS" color="black">
<font size="" color="red"><center>{{ data }}</center></font></p>

</body>
</html>
```

Upload page:

```
{% load static %}
<html>
<head>
<title>Missing Child App</title>
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<link rel="stylesheet" type="text/css" href="{% static 'style.css' %}" />
<script language="javascript">
    function validate(formObj)
    {
        if(formObj.t1.value.length==0)
        {
            alert("Please enter person name");
            formObj.t1.focus();
            return false;
        }
        if(formObj.t2.value.length==0)
        {
```

VITW III DCME

```
        alert("Please enter child name");
        formObj.t2.focus();
        return false;
    }
    if(formObj.t3.value.length==0)
    {
        alert("Please enter contact no");
        formObj.t3.focus();
        return false;
    }
    if(formObj.t4.value.length==0)
    {
        alert("Please enter location");
        formObj.t4.focus();
        return false;
    }
    if(formObj.t5.value.length==0)
    {
        alert("Please upload photo");
        formObj.t5.focus();
        return false;
    }
    formObj.actionUpdateData.value="update";
    return true;
}
</script>
</head>
<body>
<div id="wrapper">
    <div id="header">
        <div id="logo">
            <center><font size="4" color="yellow">Missing Child Identification
System using Deep
Learning and Multiclass SVM</font></center>
        </div>
        <div id="slogan">

        </div>
    </div>
    <div id="menu">
        <ul><center>
            <li><a href="{% url 'index' %}">Home</a></li>
            <li><a href="{% url 'Login' %}">Official Login</a></li>
            <li><a href="{% url 'Upload' %}">Public Upload Suspected Child</a></li>

        </center></ul>
    </div>
    <div class="hbg"></div>
        <center>
```


VITW III DCME

```
<form name="f1" method="post" action="{% url 'UploadAction' %}"
enctype="multipart/form-data" onsubmit="return validate(this);">
{% csrf_token %}
<br/>
<h2><b>Public Missing Child Upload Screen</b></h2>

<font size="" color="red"><center>{{ data }}</center></font>

<table align="center" width="40" >
<tr><td><b>Person&nbsp;Name</b></td><td><input type="text"
name="t1" style="font-family: Comic Sans MS" size="20"/></td></tr>

<tr><td><b>Child&nbsp;Name</b></td><td><input type="text"
name="t2" style="font-family: Comic Sans MS" size="20"/></td></tr>

<tr><td><b>Contact&nbsp;No</b></td><td><input type="text" name="t3"
style="font-family: Comic Sans MS" size="15"/></td></tr>

<tr><td><b>Found&nbsp;Location</b></td><td><input type="text"
name="t4" style="font-family: Comic Sans MS" size="60"/></td></tr>

<tr><td><b>Upload&nbsp;Photo</b></td><td><input type="file"
name="t5" style="font-family: Comic Sans MS" size="30"/></td></tr>
<tr><td></td><td><input type="submit" value="Submit"></td>
</table>
</div>
</div>
</body>
</html>
```

View Upload :

```
{% load static %}
<html>
<head>
<title>Missing Child App</title>
<meta http-equiv="content-type" content="text/html; charset=utf-8" />
<link rel="stylesheet" type="text/css" href="{% static 'style.css' %}" />
</head>
<body>
<div id="wrapper">
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<div id="logo">
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System using Deep
Learning and Multiclass SVM</font></center>
</div>
<div id="slogan">
</div>
</div>
```

VITW III DCME

```
</div>
<div id="menu">
<ul>
<li><a href="{% url 'ViewUpload' %}">View Public Upload Missing Childs
Status</a></li>
<li><a href="{% url 'index' %}">Logout</a></li>
</ul>
</div>
<div class="hbg"></div>

{{ data|safe }}
</body>
</html>
```

STATIC FILES:

CSS FILE:

```
* {
    margin: 0;
    padding: 0;
}

a {
    text-decoration: underline;
    color: #0F8C8C;
}

a:hover {
    text-decoration: none;
}

body {
    font-size: 11.5pt;
    color: #5C5B5B;
    line-height: 1.75em;
    background: #E0DCDC url(images/img01.gif) repeat-x top left;
}

body,input {
    font-family: Georgia, serif;
}

strong {
    color: #2C2B2B;
}
```

VITW III DCME

```
br.clearfix {
    clear: both;
}

h1,h2,h3,h4 {
    font-weight: normal;
    letter-spacing: -1px;
}

h2 {
    font-size: 2.25em;
}

h2,h3,h4 {
    color: #2C2B2B;
    margin-bottom: 1em;
}

h3 {
    font-size: 1.75em;
}

h4 {
    font-size: 1.5em;
}

img.alignleft {
    margin: 5px 20px 20px 0;
    float: left;
}

img.aligntop {
    margin: 5px 0 20px 0;
}

img.pic {
    padding: 5px;
    border: solid 1px #D4D4D4;
}

p {
    margin-bottom: 1.5em;
}

ul {
    margin-bottom: 1.5em;
}

ul h4 {
    margin-bottom: 0.35em;
}
```

VITW III DCME

```
}

.box {
    overflow: hidden;
    margin-bottom: 1em;
}

.date {
    background: #6E6E6E;
    padding: 5px 6px 5px 6px;
    margin: 0 6px 0 0;
    color: #FFFFFF;
    font-size: 0.8em;
    border-radius: 2px;
}

#content {
    width: 665px;
    float: left;
    padding: 0;
}

#content-box1 {
    width: 320px;
    float: left;
}

#content-box2 {
    margin: 0 0 0 345px;
    width: 320px;
}

#footer {
    margin: 40px 0 120px 0;
    text-align: center;
    color: #8C8B8B;
}

#footer a {
    color: #8C8B8B;
}

#header {
    height: 75px;
    position: relative;
    background: #6E6E6E url(images/img03.jpg) top left no-repeat;
    padding: 45px;
    color: #FFFFFF;
    width: 888px;
    border: solid 1px #7E7E7E;
```

VITW III DCME

```
border-top-left-radius: 5px;
border-top-right-radius: 5px;
overflow: hidden;
}

#logo {
  line-height: 160px;
  height: 160px;
  padding: 5px 0 0 0;
  position: absolute;
  top: 0;
  left: 45px;
}

#logo a {
  text-decoration: none;
  color: #FFFFFF;
  text-shadow: 0 1px 1px #3E3E3E;
}

#logo h1 {
  font-size: 2.25em;
}

#slogan {
  line-height: 160px;
  height: 160px;
  padding: 5px 0 0 0;
  position: absolute;
  right: 45px;
  top: 0;
}

#slogan h2 {
  color: #BEBEBE;
  font-size: 1.25em;
  text-shadow: 0 1px 1px #3E3E3E;
}

#menu {
  padding: 0 45px 0 45px;
  position: relative;
  background: url(images/img01.gif) repeat-x top left;
  margin: 0 0 0 0;
  height: 60px;
  line-height: 60px;
  width: 890px;
  border-top: solid 1px #5AD7D7;
  text-shadow: 0 1px 1px #007D7D;
}
```

VITW III DCME

```
#menu a {
    text-decoration: none;
    color: #FFFFFF;
    font-size: 1.25em;
    letter-spacing: -1px;
}

#menu ul {
    list-style: none;
}

#menu ul li {
    padding: 0 20px 0 20px;
    display: inline;
}

#menu ul li.first {
    padding-left: 0;
}

#page {
    padding: 45px 45px 15px 45px;
    position: relative;
    width: 890px;
    margin: 0;
}

#page .section-list {
    list-style: none;
    padding-left: 0;
}

#page .section-list li {
    clear: both;
    padding: 30px 0 30px 0;
}

#page ul {
    list-style: none;
}

#page ul li {
    border-top: solid 1px #D4D4D4;
    padding: 15px 0 15px 0;
}

#page ul li.first {
    padding-top: 0;
    border-top: 0;
}
```

VITW III DCME

```
}
```

```
#page-bottom {  
    position: relative;  
    margin: 0;  
    background: #6E6E6E url(images/img03.jpg) top left no-repeat;  
    border: solid 1px #7E7E7E;  
    width: 888px;  
    padding: 45px 45px 0 45px;  
    color: #DCDCDC;  
    border-bottom-left-radius: 5px;  
    border-bottom-right-radius: 5px;  
}
```

```
#page-bottom a {  
    color: #F5F5F5;  
}
```

```
#page-bottom h2, #page-bottom h3, #page-bottom h4 {  
    color: #FFFFFF;  
}
```

```
#page-bottom ul {  
    list-style: none;  
}
```

```
#page-bottom ul li {  
    border-top: solid 1px #8F8F8F;  
    padding: 15px 0 15px 0;  
}
```

```
#page-bottom ul li.first {  
    padding-top: 0;  
    border-top: 0;  
}
```

```
#page-bottom-content {  
    width: 665px;  
    float: left;  
}
```

```
#page-bottom-sidebar {  
    width: 200px;  
    margin: 0 0 0 690px;  
}
```

```
#search input.form-submit {  
    margin-left: 1em;  
    color: #FFFFFF;  
    padding: 10px;
```

VITW III DCME

```
        background: #2FACAC;
        border: 0;
    }

#search input.form-text {
    border: solid 1px #8F8F8F;
    padding: 10px;
}

#sidebar {
    width: 200px;
    padding: 0;
    margin: 0 0 0 690px;
}

#splash {
    margin: 0 0 0 0;
    height: 250px;
    position: relative;
    padding: 45px 45px 10px 45px;
    width: 890px;
}

#splash .pic {
    padding: 9px;
}

#wrapper {
    position: relative;
    width: 980px;
    margin: 75px auto 0 auto;
    background: #FFFFFF;
}
```

Template style:

```
body {
    margin: 0;
    padding: 0;
    line-height: 1.5em;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 15px;
    color: black;
    background: #afa87d;
}

a:link, a:visited { color: #d46528; text-decoration: none; font-weight: bold; }
a:active, a:hover { color: #2da3e9; }
```


VITW III DCME

```
p {
    margin: 0px;
    padding: 0px;
}

img {
    margin: 0px;
    padding: 0px;
    border: none;
}

.cleaner { clear: both; width: 100%; height: 0px; font-size: 0px; }

.margin_bottom_10 { float: left; width: 100%; height: 10px; font-size: 1px; }
.margin_bottom_20 { clear: both; width: 120%; height: 25px; font-size: 19px; }
.margin_bottom_30 { clear: both; width: 100%; height: 30px; font-size: 1px; }
.margin_bottom_40 { clear: both; width: 100%; height: 40px; font-size: 1px; }
.margin_bottom_50 { clear: both; width: 100%; height: 50px; font-size: 1px; }
.margin_bottom_60 { clear: both; width: 100%; height: 60px; font-size: 1px; }

.margin_right_10 { margin-right: 10px; }
.margin_right_20 { margin-right: 20px; }
.margin_right_50 { margin-right: 50px; }

.border_bottom {
    border-bottom: 1px solid #CCC;
}

#templatemo_container {
    width: 1040px;
    margin: 0 auto;
}

#templatemo_header {
    width: 1040px;
    height: 250px;
    background: url(images/templatemo_header_bg.jpg) no-repeat;
}

#templatemo_header #site_logo {
    float: left;
    margin: 80px 0 0 40px;
    width: 410px;
    height: 75px;
    background: url(images/logo1.png) bottom no-repeat;
}

.rc_btn_01 a {
    float: right;
```

VITW III DCME

```
clear: both;
display: block;
width: 80px;
height: 15px;
text-align: center;
padding: 10px 0 10px 10px;
background: url(images/templatemo_bottom_01.jpg) bottom right no-repeat;
color: #d46528;
font-weight: bold;
text-decoration: none;
}
/* menu */

#templatemo_menu {
clear: both;
width: 920px;
height: 50px;
padding: 0 80px 0 40px;
background: url(images/templatemo_menu_bg.jpg) no-repeat;
}

#templatemo_menu ul {
margin: 0px;
padding: 0px;
list-style: none;
}

#templatemo_menu ul li {
display: inline;
}

#templatemo_menu ul li a {
float: left;
padding: 20px 40px 0 0;
text-align: center;
font-size: 12px;
text-align: center;
text-decoration: none;
color: #2aa3e8;
font-weight: bold;
outline: none;
}

#templatemo_menu li a:hover, #templatemo_menu li .current {
color: #000000;
}

#templatemo_menu li .last {
background: none;
}
```

VITW III DCME

```
/* end of menu*/
```

```
/* content */
```

```
.header_01 {  
    font-size: 20px;  
    padding-bottom: 10px;  
    margin-bottom: 20px;  
    font-weight: bold;  
    color: #d46528;  
}  
  
#templatemo_content {  
    clear: both;  
    width: 920px;  
    padding: 10px 80px 30px 40px;  
    background: url(images/templatemo_content_bg.jpg) repeat-y;  
}  
  
#templatemo_content #content_left {  
    float: left;  
    width: 600px;  
    padding: 20px 0 0 0;  
    /* background: #a4ddfe; */  
}  
  
#templatemo_content #content_right {  
    float: right;  
    width: 270px;  
}  
  
#content_left .left_column_section {  
    margin: 0;  
    padding: 0;  
}  
  
.left_column_section p {  
    text-align: justify;  
    margin-bottom: 10px;  
}  
  
.image_box {  
    float: left;  
    width: 280px;  
    height: 120px;  
    background: #ffffff;  
    border: 1px solid #999;  
    padding: 4px;
```

VITW III DCME

```
}

.image_box img {
    width: 280px;
    height: 120px;
}

#content_right.right_column_section {
    clear: both;
    position: relative;
    background: url(images/templatemo_section_01_content_bg.jpg) repeat-y;
}

.right_column_section.header_02 {
    width: 270px;
    height: 30px;
    font-size: 16px;
    font-weight: bold;
    padding: 40px 0 0 0;
    text-align: center;
    background: url(images/templatemo_section_01_header_bg.jpg) no-repeat;
}

.right_column_section.header_03 {
    font-size: 12px;
    margin-bottom: 5px;
    font-weight: bold;
    color: #333333;
}

.right_column_section.content {
    padding: 10px 20px 0 20px;
    background: url(images/templatemo_section_01_content_bg.jpg) repeat-y;
}

.right_column_section span {
    position: absolute;
    width: 270px;
    height: 60px;
    background: url(images/templatemo_section_01_bottom_bg.jpg);
}

/* bottom panel */

#templatemo_bottom_panel {
    clear: both;
    width: 600px;
    height: 210px;
    padding: 0px 400px 30px 40px;
```

VITW III DCME

```
        background: url(images/templatemo_bottom_panel_bg.jpg) no-repeat;
    }

    .content_panel_section {
        float: left;
        width: 275px;
    }

    .content_panel_section ul {
        margin: 0px;
        padding: 0px;
        list-style: none;
    }

    .content_panel_4_col li {
        margin: 0px;
        padding: 0px;
        color: #2da3e9;
        padding-bottom: 5px;
        margin-bottom: 5px;
        border-bottom: 1px solid #CCC;
    }

    .content_panel_4_col li a {
        color: #2da3e9;
    }

    .content_panel_4_col li a:hover {
        color: #d46528;
    }

    .content_panel_4_col li span {
        clear: both;
        display: block;
        color: #333;
        font-weight: normal;
    }

    /* end of bottom panel*/

    /* footer */
    #templatemo_footer {
        clear: both;
        width: 920px;
        padding: 20px 80px 30px 40px;
        text-align: left;
        color: #000;
        background: #afa87d url(images/templatemo_footer.jpg) top center no-repeat;
    }
```

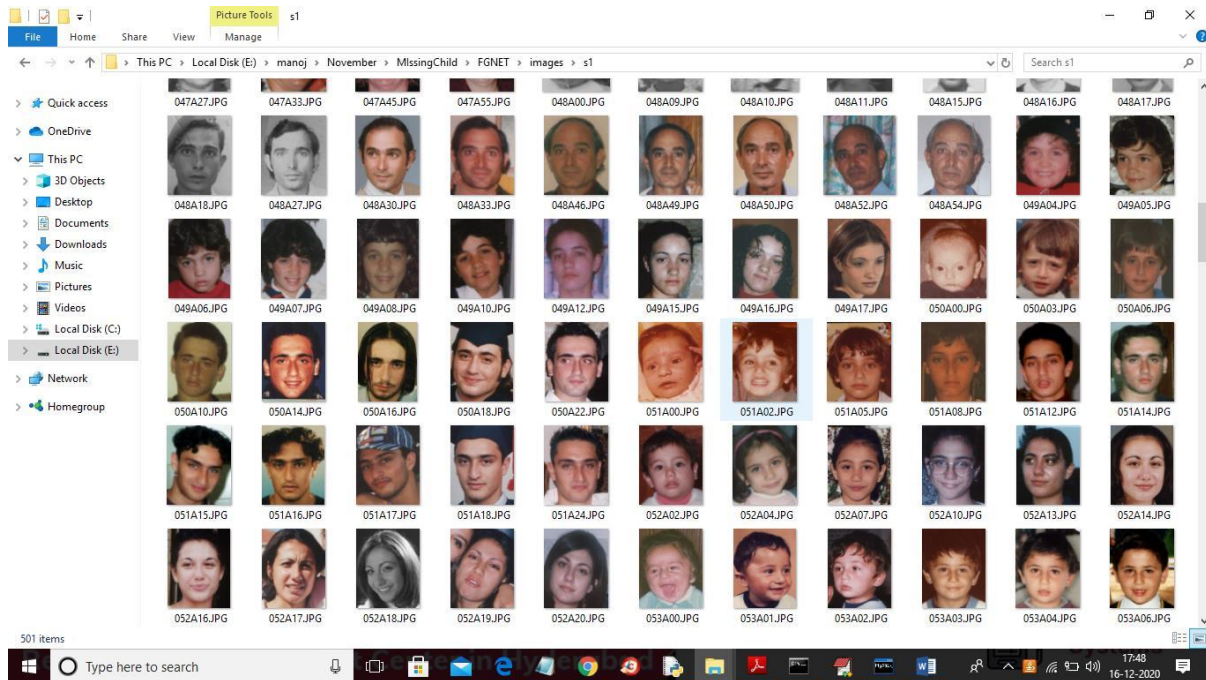
VITW III DCME

```
#templatemo_footer a{  
    color: #000;  
    font-weight: bold;  
}  
/* end of footer */
```

Backend:Using Django framework

SCREEN SHOTS

First we used below dataset to train deep learning CNN model

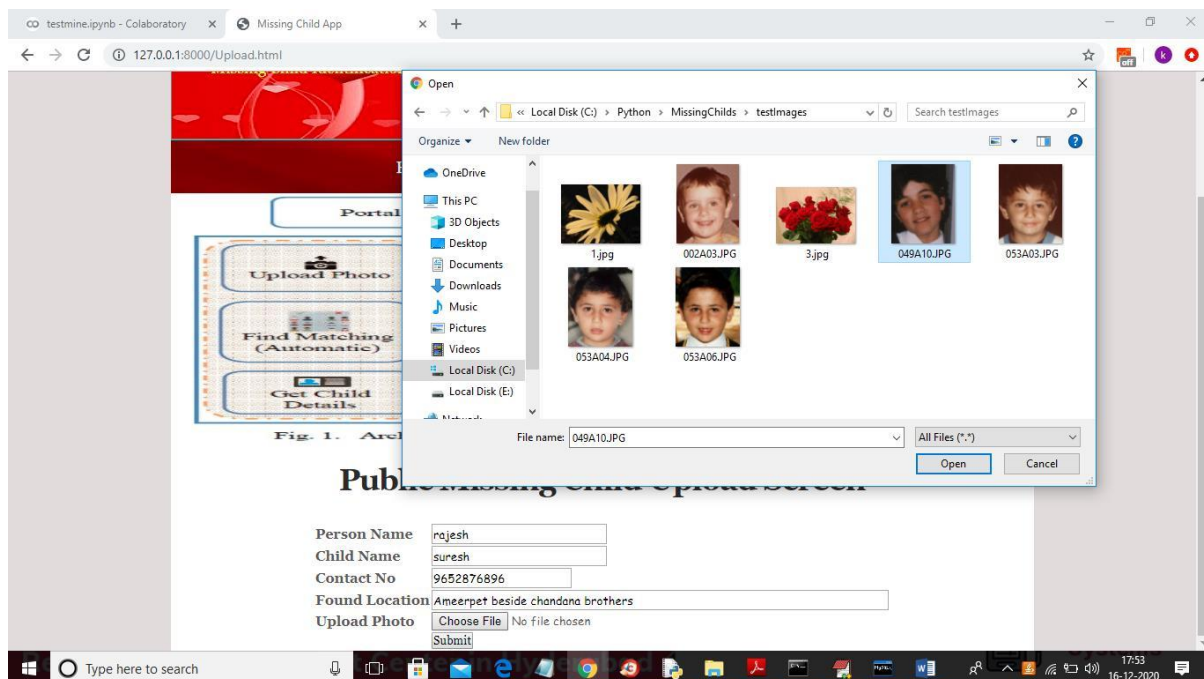


To run project follow below steps

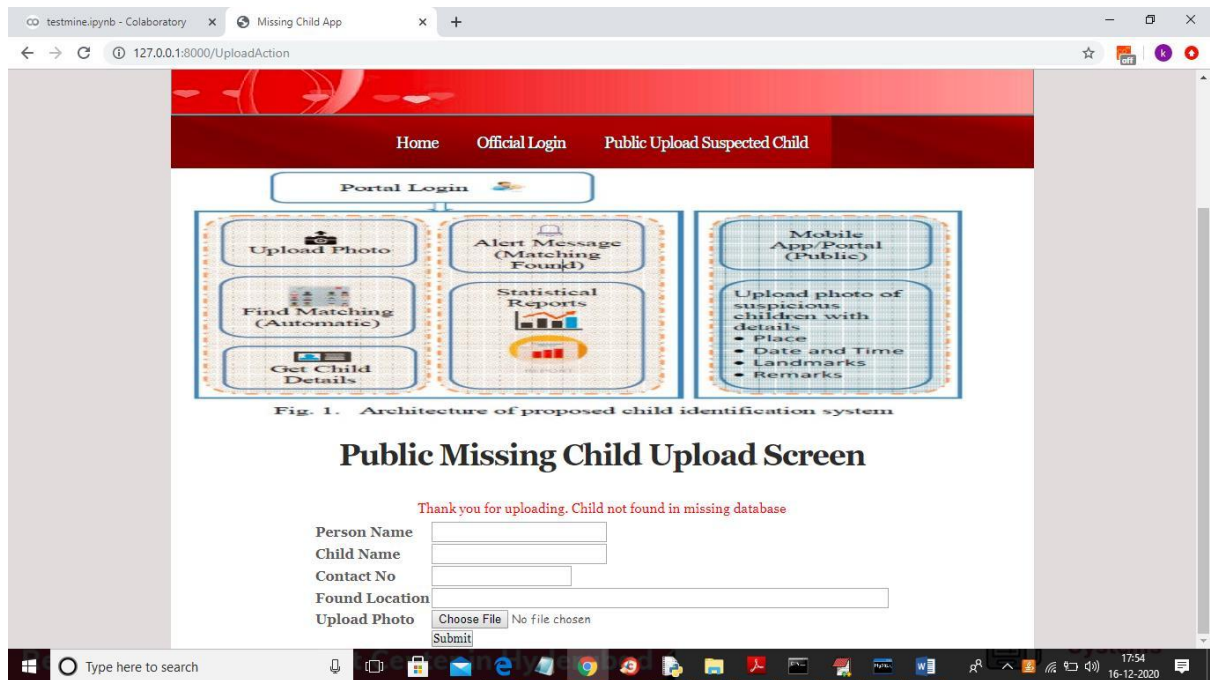
- 1) First create database in MYSQL by copying content from 'DB.txt' file and paste in MYQL
- 2) Install python, DJANGO and MYSQL software
- 3) Create 'Python' folder in C directory and put 'Missing Childs' folder in it
- 4) Start DJANGO server and run in browser to get first page



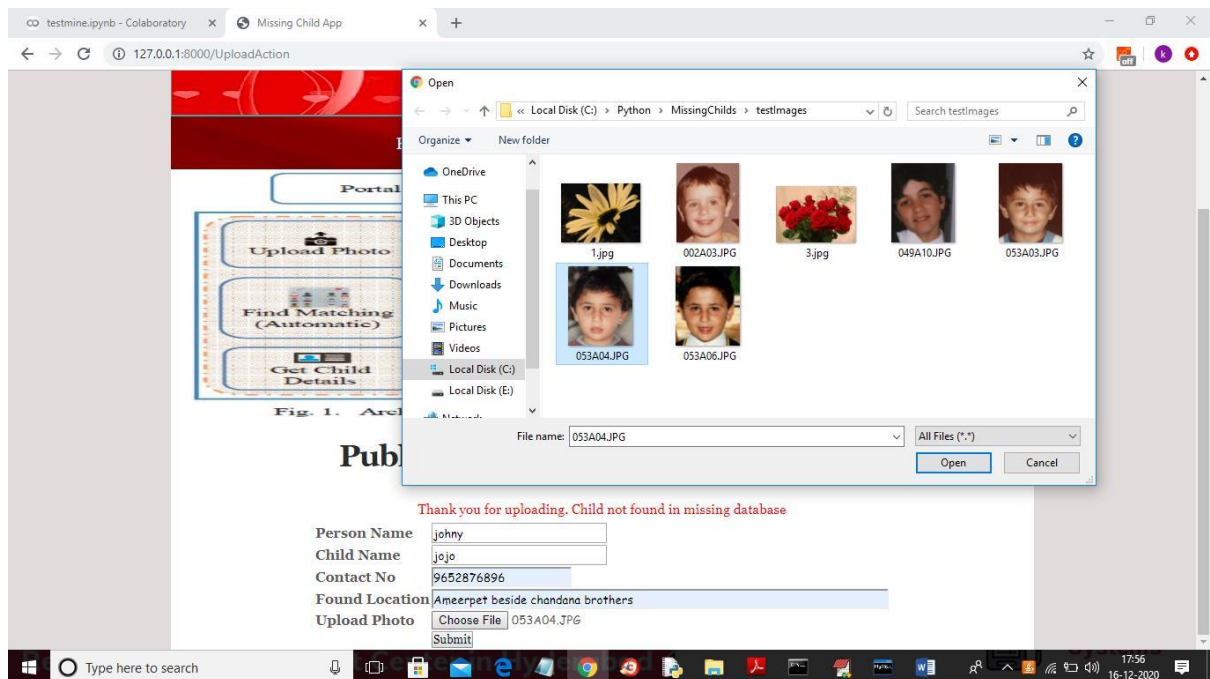
In above screen public can click on 'Public Upload Suspected Child' link to get below page and to add missing child details.

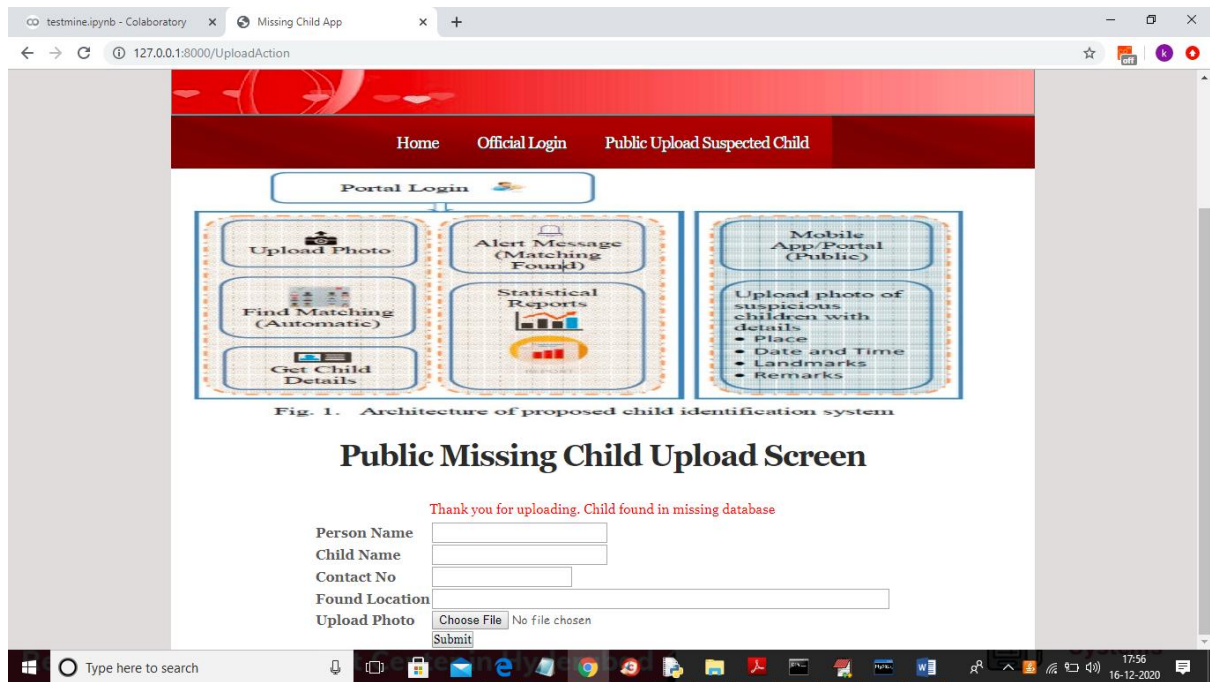


VITW III DCME

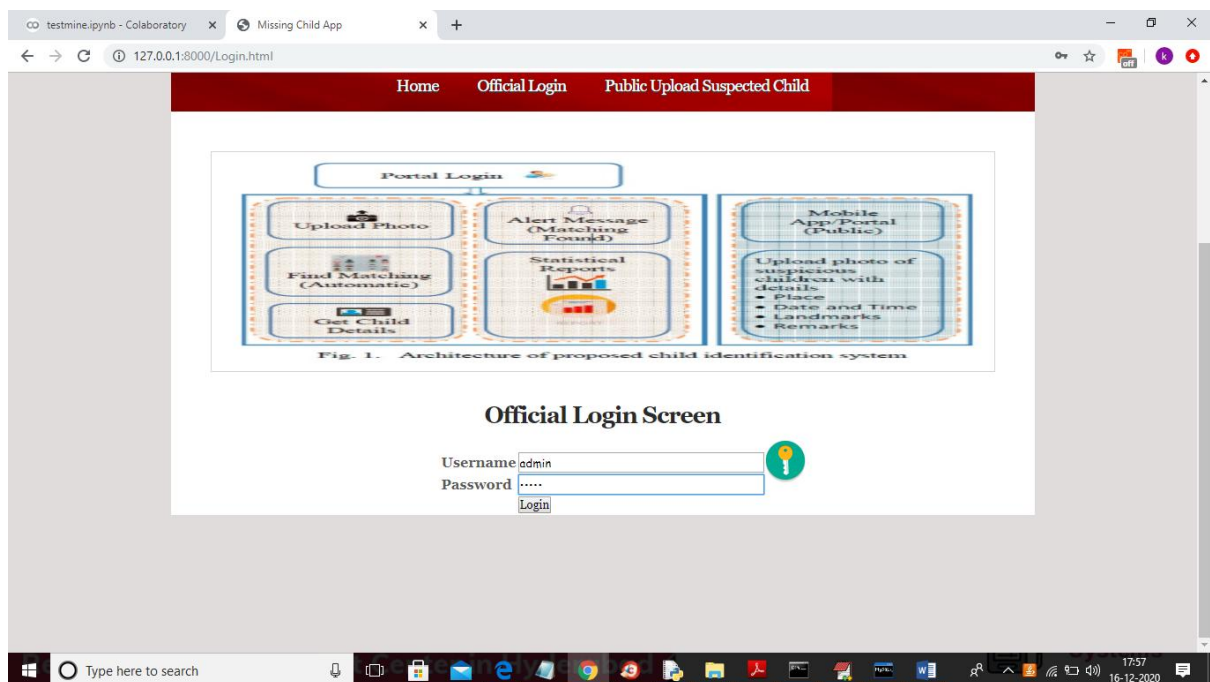


In above screen we can see child not found in missing DB and we can try with other image



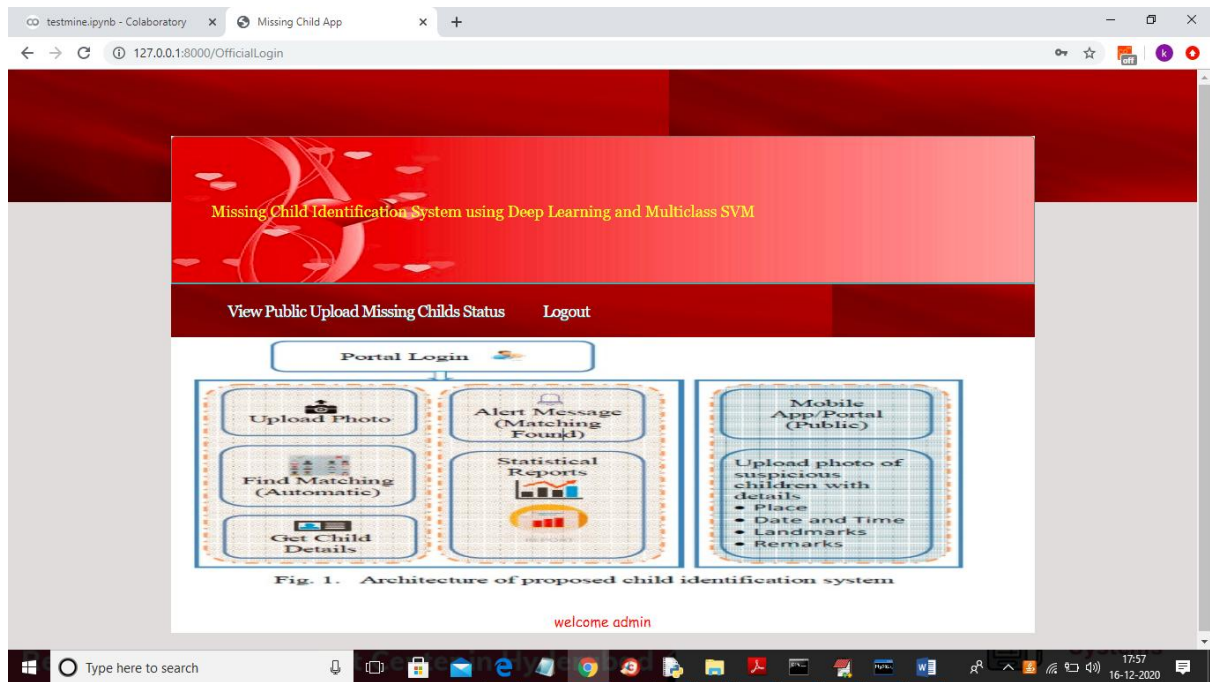


In above screen uploaded child found in database and now click on 'Official Login' link to get below login screen






In above screen admin can login by entering username and password as 'admin' and 'admin' and after clicking on 'Login' button will get below screen

VITW III DCME



In above screen official can click on 'View Public Upload Missing Childs Status' link to view all uploads and its result done by public

The screenshot shows a web browser window with the URL `127.0.0.1:8000/ViewUpload`. The page displays a table with the following columns: "Upload Person Name", "Child Name", "Contact No", "Found Location", "Child Image", "Uploaded Date", and "Status". The table contains three rows of data.

Upload Person Name	Child Name	Contact No	Found Location	Child Image	Uploaded Date	Status
rajesh	suresh	9652876896	Ameerpet beside chandana brothers		2020-12-16 17:54:25	Child not found in missing database
john	fredde	1234543212	Ameerpet beside chandana brothers		2020-12-16 17:55:35	Child not found in missing database
johny	jojo	9652876896	Ameerpet beside chandana brothers		2020-12-16 17:56:06	Child found in missing database

In above screen officials can see all details and then take action to find that child

CONCLUSION:

In this paper, A missing child identification system is proposed, which combines the powerful CNN based deep learning approach for feature extraction and support vector machine classifier for classification of different child categories. This system is evaluated with the deep learning model which is trained with feature representations of children faces. By discarding the soft max of the VGG-Face model and extracting CNN image features to train a multi class SVM, it was possible to achieve superior performance. Performance of the proposed system is tested using the photographs of children with different lighting conditions, noises and also images at different ages of children. The classification achieved a higher accuracy of 99.41% which shows that the proposed methodology of face recognition could be used for reliable missing children identification.

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