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Mini Project Report on

“Kumbh Mela Management System”

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Abstract :

The Kumbh Mela Management System is an application that manages and provides booking services to pilgrims. In this project we have tried to show the working of a ghat booking system and item ordering system with all the basic functionalities. We have developed this project to tackle the main problem of the Kumbh Mela that is the overcrowding problem and to maintain public hygiene considering the pandemic situation. Also, to provide the user an option to order items like prasad, gangajal and many more from the comfort of their home

The Kumbh Mela Management System undertaken as a project is based on relevant technologies. The main aim of this project is to tackle all the challenges faced during Kumbh Mela. This project has been developed to carry out the processes easily and quickly. This project is developed using software technologies like phpMyAdmin, HTML language ,CSS, MySQL for database connection.

Organization needs to effectively define and manage requirements to ensure they are meeting needs of the customer, while providing compliance and staying on schedule and within budget. The impact of a poorly expressed requirement can bring a business out of compliance or even cause injury or death. Requirements definition and management is an activity that can deliver a high, fast return on investment. The project analyses the system requirements and then comes up with the requirements specifications. It studies other related systems and then comes up with system specifications. The system is then designed in accordance with specifications to satisfy the requirements.

It is designed as an interactive, user-friendly booking and management system. The management system deals with data entry, validation confirmation and updating while the interactive system deals with system interaction with the administration and users. Thus, the above features of this project will save a lot of time and therefore increase the efficiency of the system. This System is built with scalability and performance in mind.

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1. Introduction :

The Kumbh Mela in India is the largest mass gathering in the world which witnessed close to 100 million visitors in 2013. An event of this magnitude presents challenges. Increased population density, reduced hygienic conditions and exposure to environmental pollutants pave the way for easy transmission of pathogens. Due to the possibility of epidemics, the primary focus should be on identifying the potential risk factors and implementing appropriate preventive measures. The context of religion and psychology of the pilgrims is also closely associated with the evolution of the risk factors and so forms an important part of the discussion. We provide a brief background to the Kumbh Mela with a description of the existing and potential risk factors that require our attention.

Stampedes have been a common occurrence and have been reported many in the past. Crowd-management is a pressing problem, especially in India where stampedes have claimed thousands of lives. During the last Kumbh Mela in Prayagraj in 2013, 36 people were killed in a stampede at the Prayagraj Railway Station. Over 100 died at the Sabarimala temple in Kerala in 2011, and in India's worst stampede disaster an estimated 800 people were killed at the Kumbh Mela in Prayagraj in 1954. Although the disaster had not happened on festival property, 36 people died during the 2013 Kumbh Mela in the railway station stampede and 39 others were injured. Was this a sign of failure—or did it prove that preventive measures for the festival had been a success? Whether the 2013 Kumbh Mela was a success or failure, such tragic unintentional injuries and accidents caused by stampedes remain a risk for mass gatherings.

1.1 Motivation :

Such events call for better methods of crowd control. To prevent deadly stampedes and manage dense crowds using minimal manpower in huge public gatherings like the Kumbh Mela we have managed to develop an online booking and management system.

If we know how these events start and how they propagate through a crowd, there are ways of mitigating it and these kinds of stampedes have clear patterns in how they start. We wanted to understand those early signs and figure out how you place the police personnel, or what we call 'gamechangers', who then direct the crowd in a way that would prevent stampede.

The event is free. Anyone in the world may attend. There are numerous access routes to the site, with constant traffic to and from the city of Prayagraj. Pilgrims may come for a quick dip, or they may be kalpavasis, pilgrims who remain throughout the entire festival, bathing daily. Authorities cannot reliably estimate how many will attend or when they will come. Even the ground facilities cannot be mapped out until the river recedes, approximately six or eight weeks before the festival. Officials do as much planning as possible in advance to anticipate the placement of roads, bridges, tent compounds, and utilities. By creating an online booking and management system we can estimate how many people are attending and make sure that everyone is vaccinated and has done RT-PCR test before attending the festival.

1.2 Objectives :

Looking at the enormity of the topic that we have selected and keeping in mind the scalability of the project we have divided the project into 3 main objectives which are listed below.

1.2.1 Slot and Ghat Allocation :

Considering the pandemic situation, this new Ghat allocation system that we have planned to integrate in our website people will automatically get allocated a ghat in their selected time and date slot that has less crowd to manage huge gathering and maintain hygiene.

We have also divided the entire ghat into different ghats and are of two types

- 1)Pink Ghat - only for ladies and children with extra security and additional facilities.
- 2)General Ghat - for rest of the pilgrims

1.2.2 Prasad Ordering :

We have created a prasad ordering system where people who will not be able to attend the Kumbh Mela due to pandemic or any other reasons can order items like prasad, ganagajal and many more from the comfort of their home.

1.2.3 Donation/Sponsoring :

We have also provided a donation facility to the people so that they can donate and also sponsor/advertise their business if they want to.

1.3 Social Relevance :

Nowadays, almost everything is automated. Most companies and businesses use automation to increase their efficiency and reduce their operating costs.

Managing factors like estimating the number of people attending the Kumbh mela, ghat allocation and many more can be taken care of. Automated controls help to ease much of the burden and challenges the government face having to manage every single factor. One of the biggest benefits automation can provide is the ability to reduce overall production costs. This is also the main reason why many countries are adopting it rapidly. The technology has improved and with so many options available, automation is available to almost anyone with any budget.

The government is losing money due to inefficient energy use, but an automated system will ensure your systems are working as a cohesive unit which will save you on overall production costs

1.4 Problem Statement :

Stampedes have been a common occurrence and have been reported many times in the past.

Crowd-management is a pressing problem, especially in India where stampedes have claimed thousands of lives. Such events call for better methods of crowd control. To prevent deadly stampedes and manage dense crowds using minimal manpower in huge public gatherings like the Kumbh Mela we have managed to develop an online booking and management system.

2. Related Work :

For better crowd management and better safety, the government in collaboration with IIT Madras has created a computer simulation that can intelligently plan where to place police personnel to quickly quell disturbances in a crowd that could otherwise lead to panic and chaos. Scientists at IIT Madras have developed an algorithm that can help manage dense crowds using minimal manpower and prevent deadly stampedes in massive public gatherings like the Kumbh Mela and the Hajj. Using a computer simulation, researchers can intelligently plan where to place police personnel to quickly quell disturbances in a crowd that could otherwise lead to panic and chaos.

They said that in such gatherings the movement of the crowd resembles that of any fluid, and hence laws of fluid dynamics can be applied to predict where disturbances can arise.

"If we look at the areal videos of people circumnavigating the Kaaba in Mecca, it looks exactly like water swirling in a bucket". The researchers tried to capture the simple rules that a person follows to navigate in a crowd into a mathematical model. The predictions of the model adhered well to experimental observations, they said.

3. Proposed Work :

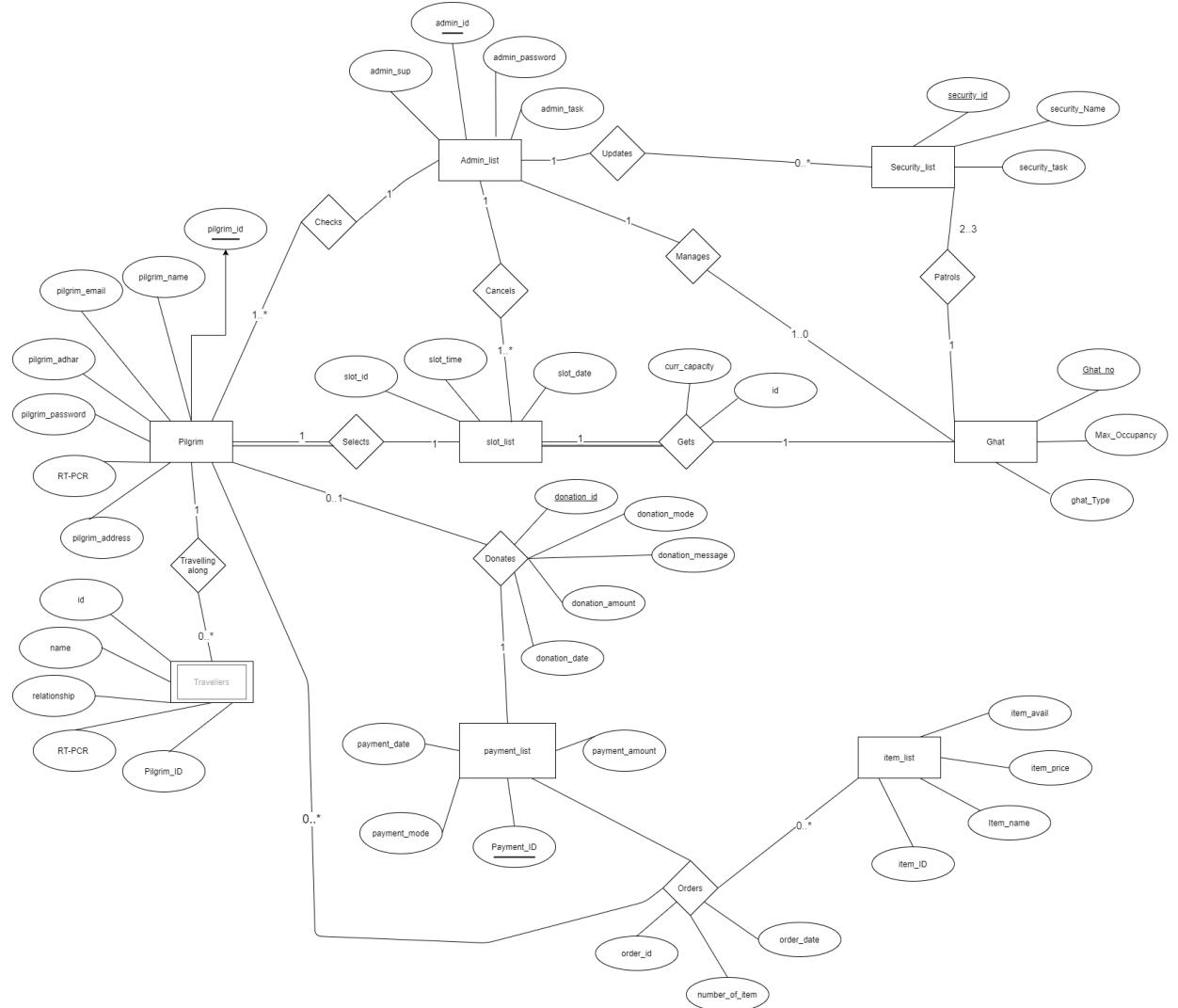
3.1 Requirement :

Kumbh Mela is the largest festival celebrated in India every 12 years with an average footfall of 4M! With such a humongous congregation of pilgrims and worshippers, it becomes important to have a proper, robust management system to handle such a big festival.

3.2 Planning :

We have planned to create a system where the user would be allotted a Ghat. The Ghat allotment is done intelligently by providing a ghat with a smaller number of people to avoid congestion. We have created a separate ordering system where a user can order Prashad and many more even if he is not attending the Mela.

3.3 Database Design :



3.4 Database Schema :

pilgrim

(pilgrim_id, pilgrim_name, pilgrim_adhar, pilgrim_password,pilgrim_address)

item_list

(item_id, item_name, item_price, item_avail)

pilgrim_order

(order_id, pilgrim_id, item_id, number_of_item, order_date)

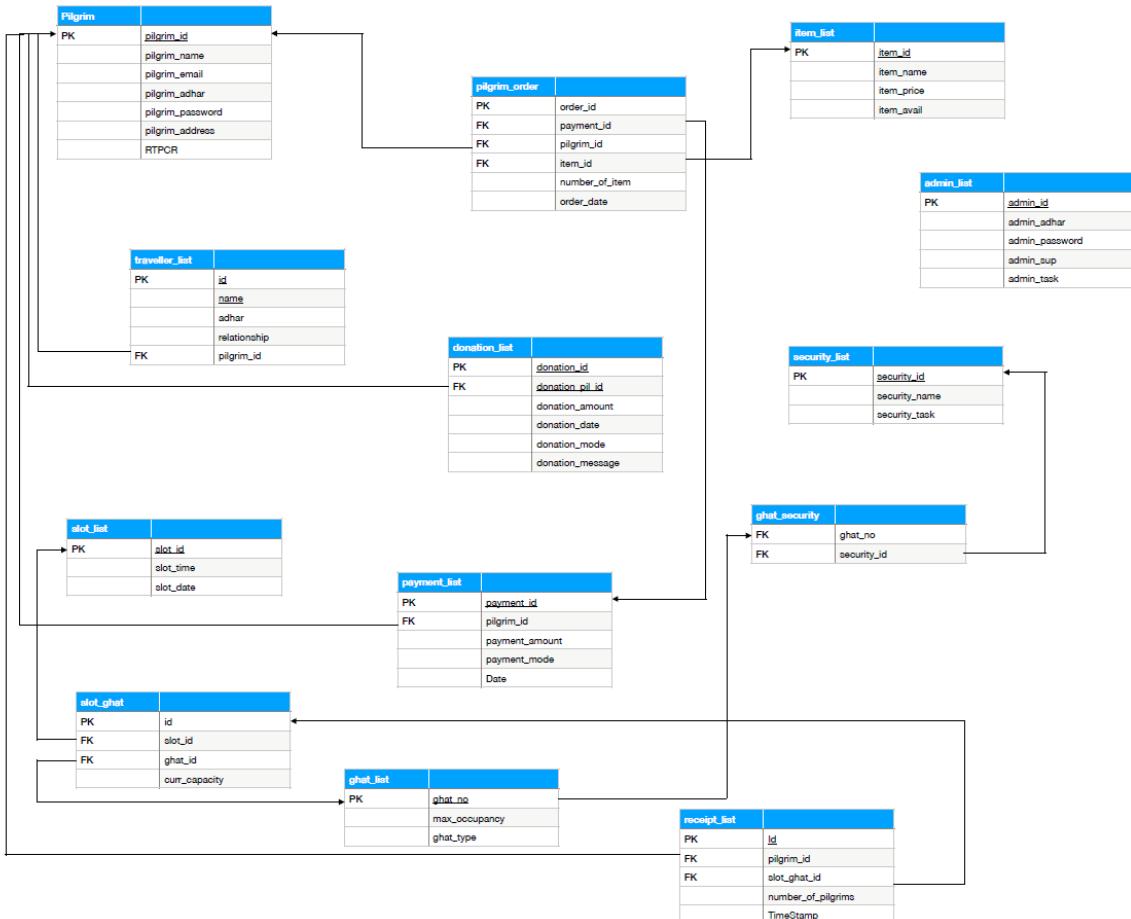
admin_list

(admin_id, admin_adhar, admin_password, admin_sup, admin_task)

donation_list

(donation_id, donation_pil_id, donation_amount, donation_date date, donation_mode, donation_message)

3.5 Relational Database Design :



3.7 DDL Commands :

```
show tables;
```

```
1.create table ghat_list
```

```
(  
    ghat_no int not null auto_increment,  
    ghat_max_occupancy int,  
    ghat_type varchar(20),  
    ghat_curr_capacity int,  
    primary key (ghat_no)  
)
```

```
2. create table slot_list
```

```
(  
    slot_id int not null auto_increment,  
    slot_time time,  
    slot_date date,  
    primary key (slot_id)  
)
```

```
3. create table slot_ghat
```

```
(  
    slot_id int,  
    ghat_no int,  
    foreign key (slot_id) references slot_list (slot_id) on delete set NULL,  
    foreign key (ghat_no) references ghat_list (ghat_no) on delete set NULL  
)
```

4. create table item_list

```
(  
    item_id int NOT NULL auto_increment,  
    item_name varchar(50),  
    item_price int,  
    item_avail int,  
    primary key (item_id)  
);
```

5. create table pilgrim

```
(  
    pilgrim_id int not null auto_increment,  
    pilgrim_name varchar(50),  
    pilgrim_adhar int,  
    pilgrim_address varchar(200),  
    pilgrim_req_condition varchar (100),  
    primary key (pilgrim_id)  
);
```

6. create table traveller_list

```
(  
    traveller_id int not null auto_increment,  
    pilgrim_id_main int,  
    traveller_adhar int,  
    traveller_rtpcr varchar(10),
```

```

traveller_req_condition varchar(100),
primary key (traveller_id),
foreign key (pilgrim_id_main) references pilgrim (pilgrim_id) on delete set
null
);

```

7. create table pilgrim_order

```

(
order_id int,
pilgrim_id int,
item_id int,
number_of_item int,
order_date date,
foreign key (item_id) references item_list (item_id) on delete set NULL,
foreign key (pilgrim_id) references pilgrim (pilgrim_id) on delete set NULL
);

```

8. create table admin_list

```

(
admin_id int NOT NULL auto_increment,
admin_sup int,
admin_task varchar(20),
primary key (admin_id)
);

```

9. create table security_list

```

(
security_id int not null auto_increment,

```

```

    security_name varchar(40),
    security_task varchar(50),
    security_ghat_assigned int,
    primary key (security_id)
);

```

10. create table ghat_security

```

(
    ghat_no int,
    security_id int,
    foreign key (ghat_no) references ghat_list (ghat_no) on delete set NULL,
    foreign key (security_id) references security_list (security_id) on delete set
    NULL
);

```

11. create table donation_list

```

(
    donation_id int NOT NULL auto_increment,
    donation_amount int,
    donation_date date,
    donation_mode varchar(30),
    donation_message varchar(100),
    primary key (donation_id)
);

```

12. create table pilgrim_donation

```

(
    pilgrim_id int,

```

```
donation_id int,  
foreign key (pilgrim_id) references pilgrim (pilgrim_id) on delete set NULL,  
foreign key (donation_id) references donation_list (donation_id) on delete set  
NULL  
);
```

3.8 DML Commands :

1. SELECT a.* , b.* , c.*

from slot_ghat a

LEFT JOIN slot_list b ON a.slot_id = b.slot_id

LEFT JOIN ghat_list c ON a.ghat_id = c.ghat_no

WHERE a.ghat_id = 1;

SELECT * FROM slot_ghat

WHERE slot_ghat.ghat_id IN (

SELECT ghat_list.ghat_no FROM ghat_list

WHERE ghat_list.ghat_no=4

);

2.SELECT a.id, b.slot_time , c.ghat_no

FROM slot_ghat a

INNER JOIN slot_list b ON b.slot_id = a.slot_id

INNER JOIN ghat_list c ON c.ghat_no = a.ghat_id

ORDER BY c.ghat_no

;

3.INSERT INTO pilgrim

(pilgrim_name,email,pilgrim_adhar,pilgrim_password,pilgrim_address)

values

('\$fullname','\$mail','\$adhar','\$pass','\$address');

4.SELECT email,pilgrim_adhar FROM pilgrim WHERE email='\$mail' or

pilgrim_adhar='\$adhar';

5.INSERT INTO pilgrim_order(payment_id,pilgrim_id,item_id,number_of_item) values
('\$payment_id','101','\$id','\$orders');

5.SELECT (payment_id) from payment_list ORDER BY payment_id DESC LIMIT 1;

6.UPDATE payment_list SET payment_amount = '\$total1' WHERE payment_id =
'\$payment_id';

7.INSERT INTO

donation_list(donation_pil_id,donation_amount,donation_mode,donation_message) values
('101','\$amount','\$paymentmethod','\$msg') ;

8.UPDATE pilgrim set

pilgrim_name='\$fname',pilgrim_adhar='\$adhar',pilgrim_address='\$address' where
email='\$email';

9.INSERT INTO traveller_list (name,adhar,relationship,pilgrim_id) values
('\$fullname','\$adhar','\$relation','\$pilgrim_id') ;

10.INSERT INTO receipts_list

(pilgrim_id, slot_ghat_id, no_of_pligrim)

VALUES

('\$pilgrim_id', '\$slot_ghat_id', '\$no_of_pilgrim');

11.UPDATE pilgrim SET pilgrim_password = '\$pass' WHERE email ='\$email'"

12.INSERT INTO item_list(item_name,item_price,item_avail)
VALUES('\$name','\$price','\$avail');

13."UPDATE item_list SET item_name='\$name', item_price='\$price', item_avail='\$avail'
WHERE item_id='\$id'"

14."DELETE FROM ghat_list WHERE ghat_no='\$id'"

3.9 Trigger :

1. CREATE TRIGGER `after_insert_update_curr_capacity` AFTER INSERT ON `receipts_list` FOR EACH ROW UPDATE ghat_list SET curr_capacity = curr_capacity - new.no_of_pligrim WHERE ghat_no = (SELECT ghat_id FROM slot_ghat where slot_ghat.id = new.slot_ghat_id);
SELECT * FROM ghat_list
WHERE ghat_list.ghat_no = (
 SELECT slot_ghat.ghat_id FROM slot_ghat
 WHERE slot_ghat.ghat_id = 2 LIMIT 1
);
2. DROP TRIGGER IF EXISTS `check_availbility`;CREATE DEFINER='root'@'localhost'
TRIGGER `check_availbility` AFTER INSERT ON `pilgrim_order` FOR EACH ROW
UPDATE item_list SET item_avail = item_avail - NEW.number_of_item WHERE item_id =
NEW.item_id

3.11 Software Technologies Used :

1)PhpMyAdmin

phpMyAdmin is a free and open-source administration tool for MySQL and MariaDB. As a portable web application written primarily in PHP, it has become one of the most popular MySQL administration tools, especially for web hosting services.

2)PHP

The PHP Hypertext Preprocessor (PHP) is a programming language that allows web developers to create dynamic content that interacts with databases. PHP is basically used for developing web-based software applications. This tutorial helps you to build your base with PHP.

3)HTML,CSS

The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.

4)Xampp

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages.

3.12 Deployment :

The app currently works locally but we have planned on deploying it to Heroku or Netlify.

3.13 Rough Cost Estimation :

Average cost of managing Kumbh Mela - ₹2,500/- crores

Average cost of creating and managing a large scale website- ₹5 crores

3.14 Results Obtained :

User Panel:-

Signup Page:-

SIGNUP FORM

SIGNUP FORM

Enter First Name

Enter Last Name

Enter Email :

Aadhar No :

Address :

Enter Password

Confirm Password

[Register Now](#)

Login Page:-



[Admin Login](#) [User Login](#) [User Sign up](#)

USER LOGIN FORM

LOGIN FORM

Enter Email Id

Password

[Forgot Password](#)

[LOGIN](#) | [Not Register Yet](#)

Items Page:-

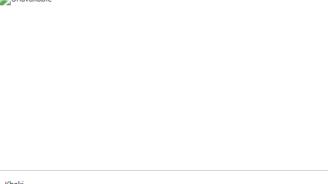


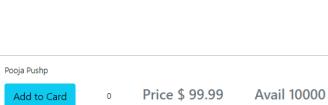
himanshu2346@gmail.com

Shop Profile  Book Slot About Us [Log Out](#)

ITEMS:-

Search Here

		
Khaki Out Of Stock 0 Price \$ 20.00 Avail 0 Add to Cart	Moti Add to Cart 0 Price \$ 99.99 Avail 498 Add to Cart	Ganga Jal Add to Cart 0 Price \$ 10.00 Avail 9998 Add to Cart
		

		
Pooja Pushp Add to Cart 0 Price \$ 99.99 Avail 10000 Add to Cart	Rudraksh Add to Cart 0 Price \$ 99.99 Avail 10000 Add to Cart	MotiChoor Add to Cart 0 Price \$ 25.00 Avail 7000 Add to Cart
		
Laddu Add to Cart 0 Price \$ 30.00 Avail 8000 0	Gulab Jamun Add to Cart 0 Price \$ 41.00 Avail 5000 Add to Cart	

[Submit](#)

© E-Kumbh Mela | [Designed by - Students of MIT-WPU](#)

Checkout Page:-

User- forget Password:-

'Profile Page :-

MY PROFILE

My Profile

Enroll ID : 101

Enter Full Name
Himanshu Chaudhari

Aadhar No :
9876543210

Enter Email
himanshu2346@gmail.com

Enter Address
rersfrgbytgvg.gcfq.vgyhg asasasasa

Update Now

Payment List:-

PAYMENTS

List of Payments

sr no	Payment Id	Amount	mode	date
1	13	399.97	paypal	2021-10-09
2	14	319.97	debitcard	2021-10-09
3	16	209.98	debitcard	2021-10-11
4	17	209.98	creditcard	2021-10-11

Showing 1 to 4 of 4 entries

Previous **1** Next

Book Slot:-

RECEIPT

Receipt

Enroll ID : 101

Enter Full Name
Himanshu Chaudhari

Aadhar No :
9876543210

Enter Email
himanshu234@gmail.com

Enter Address
nscrifvghytgvg.gcfcg.vgyhg asasasasa

Select Ghat

Ghat No :1 --> Time: 18:15:32 --> capacity: 146

With:

+ Add 0

Update Now

Admin Panel:-

Login Panel:-



Admin Login User Login User Sign up

ADMIN LOGIN FORM

LOGIN FORM

Enter Adhar No
100003647

Password
.....

LOGIN

DashBoard:-

The screenshot shows the Admin Dashboard with the following data:

- No. Of Pilgrim: 4
- No. of Items: 11
- No. of Donation: 1

Insert New Item:-

The screenshot shows the Add Items form with the following fields:

Item Info	
Item Name	<input type="text"/>
Item Price	<input type="text"/>
Item available	<input type="text"/>
Choose Cover Img To Be Upload (.png)	
<input type="button" value="Choose File"/> No file chosen	
<input type="button" value="Create"/>	

Manage items:-

MANAGE ITEMS

Items Listing					
		Name	Price	avail	Action
1		Khaki	20.00	0	Edit Delete
2		Moti	99.99	498	Edit Delete
3		Ganga Jal	10.00	9998	Edit Delete
4		Khadau	99.99	998	Edit Delete
5		Kaju Katli	99.99	1000	Edit Delete
6		Abhishek	50.00	100000	Edit Delete
7		Pooja Pushp	99.99	10000	Edit Delete
8		Rudraksh	99.99	10000	Edit Delete
9		MotiChoor	25.00	7000	Edit Delete
10		Laddu	30.00	8000	Edit Delete

Showing 1 to 10 of 11 entries

Previous [1](#) [2](#) Next

Manage- ghat



Admin Panel

- [Dashboard](#)
- [Item](#) ▾
- [Slots](#) ▾
- [About Us](#)
- [Log Out](#)

MANAGE GHATS

Ghats Listing

Ghats Listing					
		Ghat No	Maximum Occupancy	Type	Action
1		1	150	qwert	Edit Delete
2		2	200	trewnq	Edit Delete
3		3	350	qazw	Edit Delete
4		4	100	mnbvcx	Edit Delete

Showing 1 to 4 of 4 entries

Previous [1](#) Next

localhost/kumbh mela/Admin/dashboard.php

Manage-slot

The screenshot shows the 'Manage-slot' page of the Kumbh Mela Management System. At the top, there is a logo featuring a traditional Indian lamp (diya) and the text 'नमस्कार कुम्भ मेला' (Namaskar Kumbh Mela). To the right of the logo is the 'Admin Panel' header. Below the header, there is a navigation bar with links: 'Dashboard', 'Item ▾', 'Slots ▾', 'About Us', and a red-bordered 'Log Out' button.

The main content area is titled 'MANAGE SLOTS'. It contains a table titled 'Slots Listing' with the following data:

#	Slot Time	Slot Date	Action
1	18:15:32	2021-02-12	Edit Delete
2	17:18:45	2021-10-08	Edit Delete
3	18:20:32	2021-02-12	Edit Delete
4	17:18:45	2021-10-08	Edit Delete

Below the table, there is a message 'Showing 1 to 4 of 4 entries' and a navigation bar with buttons for 'Previous', 'Next', and a page number '1'.

4. Future Prospects :

In the future, we are thinking of using various technologies, some of which include implementing ML/AI models into the system.

We would analyze the trends till now and train a model based on that using various other predictive technologies and make necessary decisions.

The data we would be taking into consideration would include but not be limited to all the registrations made up to now, people lost, stampede data, bookings made, ordered items, police records, and a lot more!

We could implement Computer Vision technology for various use cases. Some of them are discussed below :

One of the main issues with such a large event is that people get lost and especially small children get separated from their family members and don't have a clue what to do next.

So by using computer vision we would be scanning the faces of all the people who register and enter the Kumbh Mela during the initial security pass only and add them to our virtual GPS tracker system.

This virtual GPS tracker system would be tracking each and every person by using the multiple cameras installed around the whole Kumbh Mela and the Ghats and would be updating their location on the Google Map.

So if someone is lost they could sit in the nearest find me booth or be wherever they are and their loved ones would be able to locate them by requesting the security professionals present there and they would receive their live location and get reunited. Even if no one contacts them we still have all the necessary information about a person. This use case will prove really helpful where small children cannot remember their parent's mobile number or even sometimes their name! Since we would be having all the information associated with that particular child it would be really easy for the officials to safely return the child home/to their parents.

This system would also prove useful to prevent any malicious activities like someone carrying any sort of weapons and maybe even bombs!

If we see some other basic use case in this then we might also check that each person receives the Aarti prasad only once, so that the prasad gets distributed evenly.

During such covid times, we don't want any area to get crowded. So to tackle this our virtual GPS tracker would inform the assigned security official about that area so that necessary action could be taken.

We also want to keep our Maa Ganga safe, clean, and away from waste. We may implement some RFID sensors and if someone tries to throw anything into the river its proof would get recorded and the particular person would be fined.

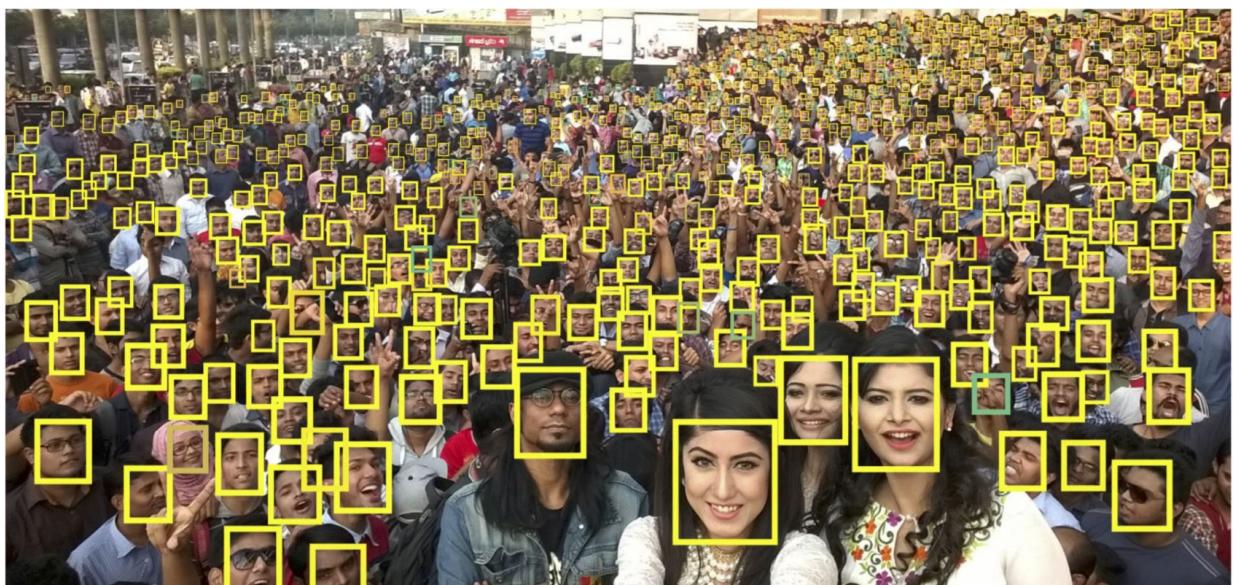


Fig: An example of how Face detection looks like

5. References :

Press Trust of India. (2019, February 21). Now An Algorithm That Can Control The Entire Kumbh, Thanks To IIT Madras. NDTV.Com.

<https://www.ndtv.com/india-news/now-an-algorithm-that-can-control-the-entire-kumbh-thanks-to-iit-madras-1997029>

<https://www.helpsystems.com/resources/guides/automated-operations-5-benefits-your-organization>

<https://www.google.com/search?channel=crow5&client=firefox-b-d&q=Xampp>

<https://www.google.com/search?channel=crow5&client=firefox-b-d&q=html>

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