Software Requirements Specifications

for Virtual ad-Space

By - Vadlamudi Sony Venkatesh (150101080)
Vaibhav Pratap Singh (150101081)
Joy Chopra (150101083)

Goals of Implementation:

Client Requirements:
An android application such that whenever user points his smart-phone camera to buildings(from outside the building) in IITG campus, the buildings along with the company's advertisement is shown on the screen.

The application has two different uses for the end-user :
1)To click pictures and record videos
2)To use for navigation inside the IITG campus.

Functional Requirements

Hierarchy :-

F1 Run Camera
- F1.1 Apply Filters
- F1.2 Capture Photo
- F1.3 Record Video
- F1.4 Navigator
  - F1.4.1 Set Destination
  - F1.4.2 Show Direction
- F1.5 Show Building Advertisement and details
  - F1.5.1 Show Advertiser's Website
  - F1.5.2 Show buildings details

F2 Switch Camera

Function Specifications :-

F1 Run Camera
Input : The camera to run(front or rear)
Output : Camera Frame
Description :
Runs the corresponding camera (front or rear) as described by input and outputs the current frame of that camera as Camera Frame.

F1.1 Apply Filters

Input : Camera Frame, User input (through standard input device) for filter from the filter choices available

Output : Filtered Camera Frame

Description :

Applies the filter specified in input to Camera Frame using image processing techniques and outputs the Filtered Camera Frame.

F1.2 Capture Photo

Input : Filtered Camera Frame

Output : Stores the Filtered Camera Frame

Description :

It captures a stable Filtered Camera Frame and stores it in the designated place .

F1.3 Record Video

Input : Stream of Filtered Camera Frames,

Output : Stores the chosen part of input stream

Description :

The function will store the chosen set of filtered camera frames as a recording.The chosen part of the input stream comes from the ability of the user to pause and video in between the recording as he wants.

F1.4 Navigator

Input : Camera Frame, User input (through standard input device) for building from the building choices available

Output : Shows Camera Frame with directions

Description :

The function recognises building in Camera Frame and based on user input for destination shows user the direction(left or right) in which to go to reach the destination from user's current location.The function shows the Camera Frame along with the directions.

F1.4.1 Set Destination

Input : User input (through standard input device) for building from the building choices available

Output : Destination

Description :

The user input through standard input device will be the input to this function and the Destination will be set accordingly.

F1.4.2 Show Direction

Input : Camera Frame, Destination

Output : Shows Camera Frame with directions

Description :
The function will recognize the building and determine the direction(left or right) in which to go for reaching destination and then show the Camera Frame with the direction.

F1.5 Show Building Advertisement and details
Input : Filtered Camera Frame
Output : Show Filtered Camera Frame with Advertisement and name of the building.
Description :
The function will display an advertisement along with the ongoing camera frame as long as the normalised input (input frame after removing the applied filters) matches with any of the buildings in the chosen IITG virtual space .

F1.5.1 Show Advertiser's Website
Input : Link to the Advertiser's website
Output : Redirection to the Advertiser's Website
Description :
The function will redirect the user to the advertiser's website on their default Web Browser

F1.5.2 Show Building details
Input : Identified IITG Building
Output : Details of the specified Building
Description :
This function when called displays the details of the identified building .
The details here include the name and infrastructure(in the form of a 2D image) of the building.

F2 Switch Camera
Input : Current camera status
Output : Camera, that is inverted from the previous state
Description :
This function is used to switch the camera between the so called two sates ,front and rear camera whenever the user want .

Non-Functional Requirements

Usability:

1)* Application will decide whether to place the advertisement on top or bottom of the screen based on following priorities :-

a) Advertisement should not be placed on faces. If face occur on both top and bottom the advertisement is shown at place with less faces.
b) If there is sky or floor(less detailed; less contrast parts) show Advertisement there.

2) The application will be able to work in darker places.
3) Can be able to pause, resume video recording.
4) Application should be able to detect a building from any direction accurately.
5)*Advertisement must occupy no more than 15% of the screen.
6) Must include a user guide to explain about the application and how to use it.
7) The camera must be pointed at a building at least for a certain amount of time (around 3-5s) before the advertisement pops up.
8) The Navigator must use routes through which more detectable buildings are present.
9) All the following buildings should be detected:

All Hostels in IITG, Academic Complex, Lecture Halls, Administrative Building, Auditorium, Library, Old Sac, New Sac, Market Complex, Mechanical Workshop,Conference Hall, Hospital, Guest House, Faculty Quarters, Technology Complex, KV School and Quarters and Community Halls

As all major buildings of the campus are are identifiable, it thus helps the Navigator mode of application because user can point on many buildings along the routes to get directions.
10)* The application must support use of both front and rear camera.

**Based on survey conducted*

What follows below is not part of the SRS but details about the user survey conducted.

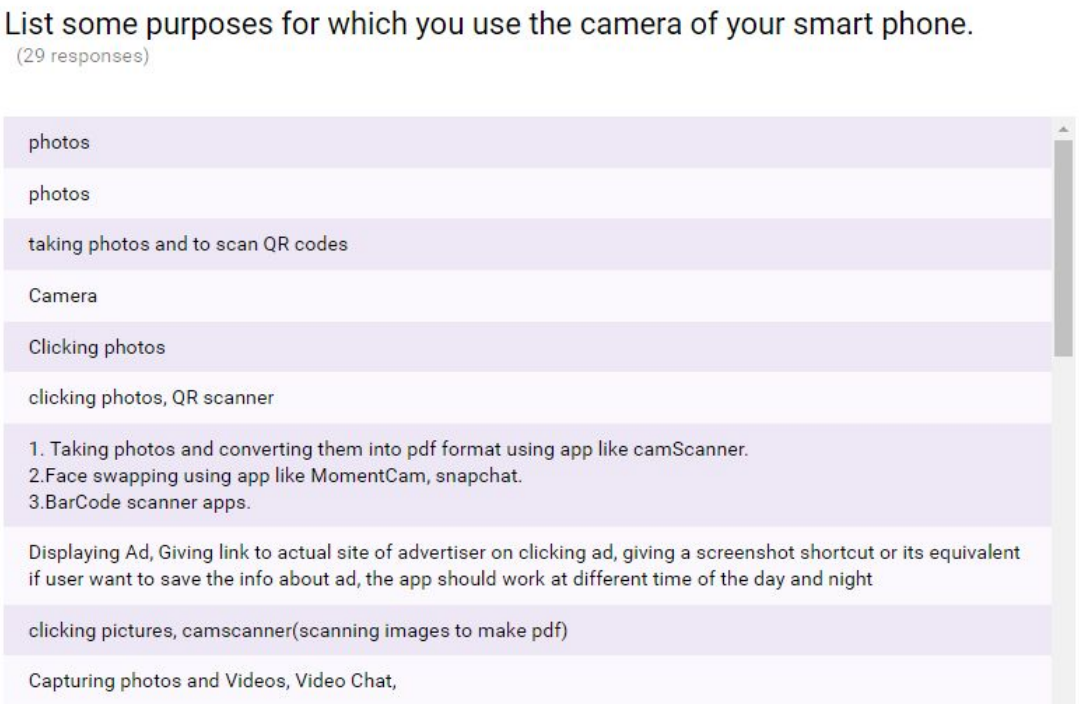
About the survey

The purpose of the survey was to know what are the various applications for which various users use the camera in their phone in day to day life, so that we can make our application useful to them. Also to know about how we could place the advertisement to minimise the discomfort caused to users.

Observations and Interpretations from survey.

1) All respondents use the mobile camera for clicking pictures.Some have also mentioned use of front camera(for selfies).
2) One of the other use listed by majority is for scanning documents or QR codes but this use is not in accordance with the client requirement.
3) Advertisement should occupy no more than 15% of the screen size and should appear at less attractive,less detailed portions of the screen like empty sky or floor.
4) Navigator feature of the Application is useful for people who are new to the Campus, but this feature is not reusable, when they'll get familiar with the Campus places and buildings.

The questions and responses of the survey are shown below:
(The survey was conducted using Google Forms)



clicking pictures, lab work, live video recording etc.

occasional photos and selfies

Clicking selfies,

taking photos , videos , scanning and recognising something (photos , bar codes etc) with the help of some apps

Camscaner, party photos

Capture photos & record video,To Scan QR Codes , Scan a product's barcode

photography only

Capturing images and videos, sharing class notes and acads related work

Taking photos and videos

taking PIctures of notes
as a mirror

Taking Pictures and selfies

Clicking normal pics

Photos ,videos of friends,surroundings

Photo shoot

the purposes for which it meant to be

taking photos, for payment via paytm

for taking class notes

Photos, QR code

If your smart phone screen has an advertisement how much percentage of screen length would be acceptable(does not disturbs your view of the picture) to you ? The white box represents advertisement. *

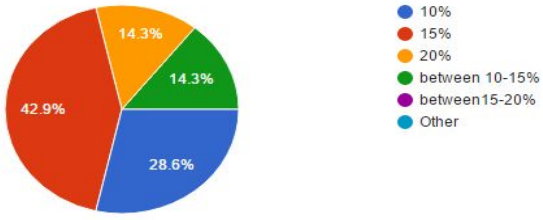
- 10%

- 15%

- 20%

- between 10-15%
- between15-20%

Responses



Same as above question. Keep in mind the original image shown below. *

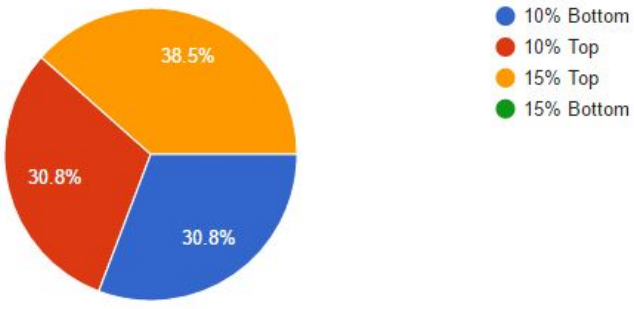
- ○ 10% Bottom

- ○ 10% Top

- ○ 15% Top

- ○ 15% Bottom

Responses



Same as above question. Keep in mind the original image shown below.

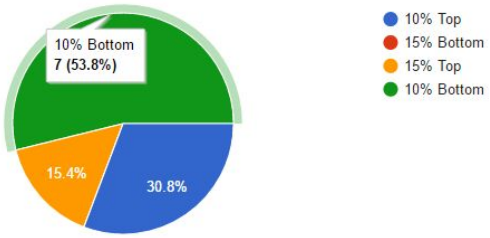
- ○ 10% Top

- ○ 15% Bottom

- ○ 15% Top

- ○ 10% Bottom

Responses

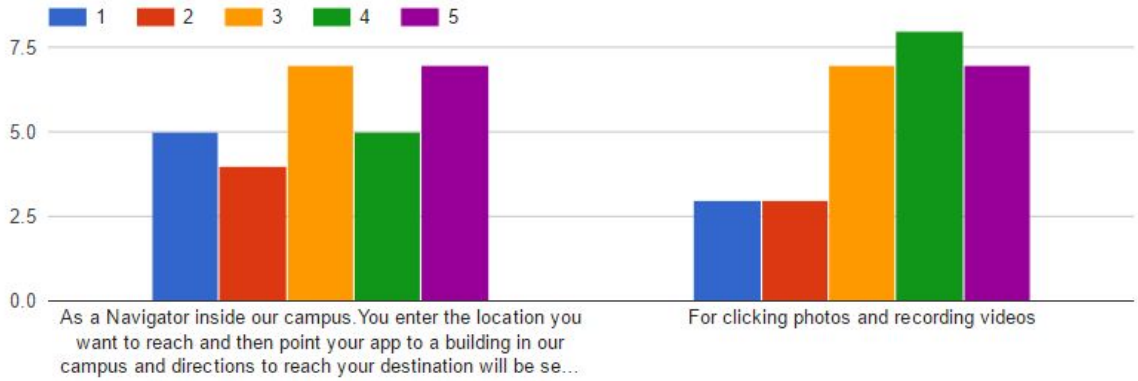


What ae the objects on which you would not like to see advertisements

(12 responses)

people
people
see the main object in a picture or the thing that make a picture good must not be covered by add. by any means. in last the picture the centre is main so no add. around that.
buildings,roads,sideways
Main subject of image
Less attractive places like first pic, where people usually don't point their camera
Personal photographs (where objects are obviously humans)
Natural beautiful areas
main object which is full size in picture.
text,more detailed parts of the picture
Audio
I do not like to see ad anywhere

Rate the following mobile apps, to which you would use the most in IITG.



comments and suggestions for placement of ad (7 responses)

Should not be there at all..
ad can be place down the photos so that we can see full photos without disturbance .
May be you can put your ad box in right side corner at the bottom.
left corner
Ad should be shown at the lower portion of the screen.
May be on pillars or floor.
dont place any ads!