

Software size estimation in functional points:

1. By IFPUG method:

i. Functional Requirement Details (Field uses, files involvement).

Transaction Function	Fields/ File involvement	FTRs	DETs
1. Authentication Phase(EI)	Fields: phone number input, enter button, already exist err message, wrong phone err message, pin number input, wrong pin err message, Bangla-English input, auto generated ID, email verification message Files: Authentication Table	1 FTR	9 DETs
2. Update Emergency phase(EI)	Fields: 4 x number input field, enter button. Files: Emergency Table	1 FTR	5 DETs
3. Emergency Help by track(EO)	Fields: 1 button, connection alert message, latitude, longitude, check phone number, call, net connection err message Files: GPS table	1 FTR	7 DETs
4. Emergency Help by message(EO)	Fields: Check balance, phone number, send message, insufficient balance message. Files: Emergency Table	1 FTR	4 DETs
5. Chat Mate send(EI)	Fields: input field, send button, usermessage Files: chatdb	1 FTR	3 DETs
6. Chat Mate incoming(EO)	Fields: botmessage and others parameter of bot. Files: chatDB, MessageStorageDB	2 FTR	10 DETs
7. Live Lawyer(EI)	Fields: (input field, send button, ip, portnumber)x 2 Files: Lawyer Table	1 FTR	10 DETs
8. Live Help Police(EQ)	Fields: livehelpbutton, police station name, number, call Files: Police Table	1 FTR	3 DETs
9. Information Desk(EQ)	Fields: 3 buttons(ngo, go, legal), name, address details, phone number Files: Information Table	1 FTR	6 DETs

10. Constitutional Act(EQ)	Fields: acts on display Files: Act Table	1 FTR	8 DETs
11. Foreground Service(EO)	Fields: adding emergency in foreground Files: Emergency Table, Gps Table	2 FTR	14 DETs

ii. Internal Logical File

Data Function Name	RET	DET
Authentication	0	8
GPS	1	4
Chat DB	3	10
Emergency	1	4
Act	0	4
Information	0	4
Live Help	0	8

iii. Base Functional Component Types

BFC Types	Function/ Files	RET	FTR	DET	Complexity	Functional Points
External Input	Authentication phase	x	1	9	L	3
	Update Emergency Contact	x	1	5	L	3
	Chat Mate Send	x	1	3	L	3
	Live Lawyer	x	1	10	L	3
External Output	Emergency Help by track	x	1	7	L	4
	Emergency Help by sending SMS	x	1	4	L	4
	Chat Mate Incoming	x	2	10	A	5
	Foreground Service	x	2	14	A	5
External Inquiry	Live Help Police	x	1	3	L	3
	Information Desk	x	1	6	L	3
	Constitutional Acts	x	1	8	L	3
Internal Logical File	Authentication	1	x	8	L	7
	GPS	2	x	4	L	7
	ChatDB	3	x	10	L	7
	Emergency	2	x	4	L	7
	Act	1	x	4	L	7
	Information	1	x	4	L	7
	LiveHelp	1	x	8	L	7
External Interface File	none	x	x	x	x	x
Total = 78						

So, total functional point counted by IFPUG method for mobile application “SHUVARTHI” is 78.

2. By COSMIC method:

FUR 1: The users shall be able to login into the application with their mobile numbers and a provided verification code for the first time only.

FP1: The user provides phone number

E- Phone number

X- Verification message

X- Error message

Size of FP1 = 3 CFP

FP2: The user provides the verification code

E- Verification code

R- Code that was provided by the application

X- Confirmation or error message

Size of FP2 = 3 CFP

Size of FUR 1 =Size(FP1)+Size(FP2)

=3Cfsu+3Cfsu

=6CFP

FUR 2: The users shall be able to logout in order to change the phone numbers they provided previously.

FP1: The user is able to logout

E- Request for logout

X- Confirmation or error message

Size of FP1 = 2 CFP

Size of FUR 2 = Size(FP1)

=2 CFP

FUR 3: The application shall be able to track the user location using GPS and make a call to the nearest police station.

FP1: Tracking users location using GPS

E- Emergency call

X- Location tracked message or error message

Size of FP1 = 2 CFP

FP2: Makes call to the nearest police station

E- Emergency call

R- Reads the police station locations and gets the nearest one comparing to the users location

X- Call to police station

X- Call failed due to insufficient balance message

Size of FP2 = 4 CFP

Size of FUR 3 = Size(FP1)+Size(FP2)

= 2Cfsu+4Cfsu

= 6 CFP

FUR 4: If the application is unable to contact any police station then it should send specific message to the emergency contacts that were provided by the user.

FP1: If the user makes an emergency call and cannot connect then a message is sent to the emergency contacts

E- Emergency call

R- Emergency contacts

X- Message sent to emergency contacts

X- insufficient balance message

Size of FP1 = 4 CFP

Size of FUR 4 = Size(FP1) = 4 CFP

FUR 5: The user shall be able to discuss the faced problem with the chat bot and the application should provide a wise decision of what to do next.

FP1: The user chats with the chat bot

E- Message from user

R- Reads ChatDB database for a reply

X- Reply from chat bot

X- Error message

Size of FP1 = 4 CFP

Size of FUR 5 = Size(FP1)

= 4 CFP

FUR 6: The user shall be able to chat with an assigned lawyer with the problems.

FP1: The user chats with the lawyer

E- Message from user

X- Reply from lawyer

X- Error message

Size of FP1 = 3 CFP

Size of FUR 6 = Size(FP1)

= 3 CFP

FUR 7: The user shall be able to call a desired police station.

FP1: The user is invited to get the list of police stations

E- Request list of police stations

R- Police station

X- Police station list

X- Error message

Size of FP1 = 4 CFP

FP2: Selects police station and makes a call

E- Selecting police station

R- Police station contact data

X- Call to the police station

X- Error message

Size of FP2 = 4 CFP

Size of FUR 7 = Size(FP1)+Size(FP2)

= 4Cfsu+4Cfsu

= 8 CFP

FUR 8: The system shall be able to provide the information about each station including addresses and contact numbers.

FP1: The user views the information about police station

E- Request for list of police station with detailed information

R- Police station

X- List of police station with detailed information

X- Error message

Size of FP1 = 4 CFP

Size of FUR 8 = Size(FP1)

= 4 CFP

FUR 9: The system shall be able to provide the information about all private agencies and NGOs related to violence, harassment and abuse.

FP1: The user views the information

E- Request for the information

R- Agencies

X- Information of agencies and related NGOs

X- Error message

Size of FP1 = 4 CFP

Size of FUR 9 = Size(FP1)

= 4 CFP

FUR 10: The application shall be able to provide all kinds of prevailing constitutional acts related to domestic violence, harassments and child abuse.

FP1: The user views the acts

E- Request for the acts

R- Constitutional acts

X- Constitutional acts

X- Error message

Size of FP1 = 4 CFP

Size of FUR 10 = Size(FP1)

= 4 CFP

FUR 11: The application shall be able to run in the foreground after first access as emergency help.

FP1: The application shall be running in the foreground

E- Starting the application

X- Application running in foreground

Size of FP1 = 2 CFP

Size of FUR 11 = Size(FP1)

= 2 CFP

FUR 12: The user shall be able to view the application in both Bengali and English

FP1: The user views the application in both Bengali and English

E- Request for the desired language

X- Displays the application in that language

Size of FP1 = 2 CFP

Size of FUR 12 = Size(FP1)

= 2 CFP

FUR 13: The user shall be able to update the previously provided emergency contacts.

FP1: The user updates the contacts

E- Updated phone number

W- Updated number

X- Confirmation or error message

Size of FP1 = 3 CFP

Size of FUR 13 = Size(FP1)

= 3 CFP

Total size of "SHUVARTHI" =Size(FUR 1)+Size(FUR 2)+Size(FUR 3)+Size(FUR 4)+

Size(FUR 5)+ Size(FUR 6)+Size(FUR 7)+Size(FUR 8)+

Size(FUR 9)+Size(FUR 10)+Size(FUR 11)+Size(FUR12)

Size(FUR 13)

= 6 CFP+ 2 CFP+ 6 CFP+ 4 CFP +4 CFP+ 3 CFP+ 8 CFP+

+4 CFP+ 4 CFP+ 4 CFP+ 2 CFP+ 2 CFP+ 3 CFP

= 52 CFP