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A Mini Project Report On "resQSquad"

Submitted in partial fulfillment of the requirement for the award of Degree of Bachelor of Engineering in Computer Science and Engineering

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2023-2024

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CERTIFICATE

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Abstract

This mini-project explores the critical role of mental health services in disaster response and recovery. By examining the literature on emergency and disaster medicine, critical incident stress management, and the psychological impact of disasters, this study aims to understand the complex interplay between physical and mental health challenges in disaster-affected populations. The research investigates the effectiveness of various mental health interventions, identifies protective factors, and highlights the importance of preparedness and community resilience. Ultimately, this project contributes to developing more comprehensive and effective disaster response plans that prioritize the mental well-being of affected individuals, fostering long-term recovery and resilience within communities.

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Introduction

Disasters unleash chaos, leaving communication in tatters. Rescue teams, racing against time, find themselves grappling with the challenge of transmitting critical messages through unreliable channels. Traditional methods often prove slow and inefficient, hindering their ability to request backup and resources urgently. This delay can be catastrophic, as every second counts in a disaster zone.

resQSquad emerges as a beacon of hope, transforming disaster response through seamless communication. This innovative mini-application connects rescue teams with NGOs and authorized users, creating a real-time network for swift information exchange. By enabling instant alerts and requests for backup or specialized equipment, resQSquad empowers rescue teams to coordinate their efforts effectively, ultimately saving lives.

1.1 Background

The aftermath of a disaster paints a grim picture: collapsed buildings, devastated landscapes, and a desperate race against time. Amidst this chaos, communication often becomes a casualty. Traditional methods like radios and phone calls can be slow, unreliable, or overwhelming. This creates a nightmare scenario for rescue teams, who struggle to get critical messages through. Urgent requests for backup or vital resources like medical supplies or specialized equipment can go unheard, hindering their ability to reach and save those in need.

This is where the need for a more robust and efficient communication system becomes paramount. The concept behind resQSquad stems from this critical gap. Imagine a scenario where outdated methods fail, leaving rescue teams in a collapsed building desperately needing additional manpower or equipment.

1.2 Objective

- To Reduce Response Times: Streamlined communication leads to faster deployment of resources and personnel, allowing rescue teams to reach survivors in critical moments.
- **To Improve Rescue Efficiency:** Real-time requests and resource coordination minimize duplication of efforts and optimize team effectiveness.
- **To Save Lives:** Faster response times and improved coordination ultimately mean more lives saved during disaster situations.

LITERATURE REVIEW

CISM

Critical Incident Stress Management (CISM) is a multi-phase intervention. It evolved from earlier, singular crisis response methods. CISM encompasses pre-incident preparation, immediate post-incident care, and ongoing support.

Key Features:

- CISM is a multi-phase intervention including pre-incident training, acute care, and post-incident follow-up.
- It addresses the psychological impact of critical incidents on individuals and groups.
- CISM emphasizes peer support, education, and symptom management.

Disaster mental health services

Disaster mental health services focus on addressing the psychological and emotional toll of disasters on individuals, families, and communities. Disasters, whether natural or human-made, can cause widespread trauma and disrupt lives, leading to a range of mental health challenges. These services aim to provide support, treatment, and prevention strategies to mitigate the long-term effects of disaster-related stress.

- Provides immediate and ongoing support to disaster survivors and responders.
- Offers a range of services including crisis counselling, trauma therapy, and community-based programs.
- Aims to reduce mental health symptoms, promote resilience, and facilitate recovery.
- Collaborates with other disaster relief organizations for comprehensive support.

Design and Implementation

3.1 Requirements and Specifications

3.1.1 Software Requirement

- Operating System: Windows (any recent version should suffice)
- **Programming Language:** Python 3 (version 3.7 or later recommended)
- Web Framework: Django (version compatible with your chosen Python version)
- Code Editor: Visual Studio Code (highly recommended, but any code editor with Python support will work)
- Optional: Git (version control system for managing your project code.)

3.1.2 Hardware requirements

- Processor: 1.1 GHz or faster (multi-core processor recommended for better performance)
- Memory (RAM): 2 GB minimum (4 GB or more recommended for smoother development experience)
- Storage: Enough disk space to accommodate the operating system, development tools, and your project files (minimum not specified, but aim for at least 20 GB)
- Internet Connection (recommended): For downloading software, accessing online tutorials, and collaborating with others (if applicable)

3.2 Diagram

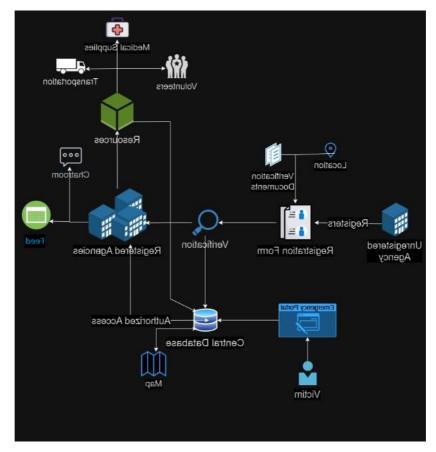


Fig 3.2.1: flow diagram of resQSquad

3.3 Implementation

3.3.1 FRONT END

resQSquad leverages the power of HTML and Django templates to build its user interface.

- **HTML Foundation:** Standard HTML provides the core structure and visual elements for the application, including forms for user input, buttons for actions, and informative displays.
- **Django Template Magic:** Django templates extend HTML functionalities through the Django Template Language (DTL). DTL empowers you to:
 - Display Dynamic Data: Integrate template variables to showcase real-time information retrieved from Python code within the HTML.

- Simplify Complexities: Implement logic and conditional statements directly in the templates for a more dynamic user experience.
- Loop with Ease: DTL facilitates looping through data lists retrieved from the database, presenting them in a user-friendly format.

This approach offers several advantages:

- **Separation of Concerns:** HTML handles presentation, while Python manages logic, promoting clear and maintainable code.
- **Dynamic Content:** Templates allow for content to adapt based on user interactions or real-time data, leading to a more engaging interface.
- **Security Focus:** Django's built-in mechanisms prevent security vulnerabilities like XSS by automatically escaping user input within templates.

In essence, this combination of HTML and Django templates allows for a secure, dynamic, and user-friendly front-end experience for ResQSquad.

3.3.2 BACK END

The core logic and functionality of ResQSquad reside in its Python-powered back-end. This is where the magic happens! Built upon the robust Django framework, the back-end provides a foundation for user management (authentication and authorization), database management (storing and retrieving critical information), URL routing (directing user requests), and even an administrative interface for managing application data and users. Beyond Django, additional Python libraries may be employed to enhance specific functionalities, such as identifying the nearest authorized agency based on a rescue team's location or sending real-time alerts requesting backup. This powerful combination allows ResQSquad to establish a user management system, ensure data persistence through a database, and facilitate real-time communication between rescue teams and authorized agencies, ultimately promoting a more coordinated and efficient response during critical disaster situations.

3.3.3 DATABASE

While PostgreSQL plays a crucial role in ResQSquad's back-end, it's important to clarify that PostgreSQL is not directly related to the application's core functionality. Postgre is a separate mail filtering software, and it's not typically used in the context of Django web applications. The Python-powered back-end of ResQSquad utilizes the robust Django framework. This framework streamlines development by providing functionalities like user management, database interaction, and an administrative interface. This allows the project to focus on core functionalities like real-time communication and location-based features. ResQSquad leverages PostgreSQL, a powerful open-source database management system, for secure and reliable data storage. PostgreSQL's features like data integrity and scalability ensure the critical information ResQSquad uses remains secure and accessible. Together, Python and PostgreSQL create a robust foundation for resQSquad, enabling efficient data management and supporting the smooth operation of this communication platform for disaster response.

SAMPLE CODE

1 FRONT END

```
HOME.html
```

```
{% extends 'base.html' %} {% block main %} {% load static %}
  <div class="h-[60dvh] overflow-hidden bg-base-300 relative">
    <img
      src="{% static 'img/rescue_bg_1.jpg' %}"
      alt="Rescue Background"
      class="opacity-20 absolute top-0 h-[60dvh] w-full sm:h-auto pointer-events-
none" />
    <div class="flex flex-col sm:ml-8 mx-2 items-center sm:items-start text-center"</pre>
sm:text-start justify-center h-full">
      <h1 class="text-4xl font-bold z-20">ResQSquad</h1>
       Uniting Heroes, Saving Lives - One Umbrella,
Infinite Hope.
      <a class="btn btn-accent mt-4 w-full max-w-md z-20 opacity-80" href="{%
url "user_report" % } ">In Need of Help?</a>
    </div>
  </div>
  <div class="flex flex-col items-center justify-center my-8 py-12">
    <h2 class="text-3xl font-bold text-center my-4">Our Mission</h2>
    leading-relaxed">
```

Our goal at ResQSquad is to bring together the unsung heroes of different

rescue organizations under one strong roof, becoming a formidable force committed to offering quick, dependable,

and life-saving reactions during emergencies. When a disaster happens, we think that relief and assistance

should be given right away. Every moment counts because lives are on the line. We

have therefore set out to coordinate the operations of the rescue organizations, bringing them all together to

create a strong network of first responders. Our organization acts as the lighthouse that directs various organizations, making sure they are organized

and prepared to effectively manage any emergency crisis.

We work with a number of agencies to ensure that we are able to provide the best possible service to our

customers. We are always looking to expand our network of agencies and are open to working with new agencies.

```
<div class="grid grid-cols-2 md:grid-cols-4 gap-8 mt-8">
  <div class="flex flex-col items-center justify-center">
    <img
      src="{% static 'img/agency_1.png' %}"
      alt="Agency 1"
      class="w-32 h-32 object-cover"
      data-aos="flip-up" />
    NDMA
  </div>
  <div class="flex flex-col items-center justify-center">
    <img
      src="{% static 'img/agency_2.png' %}"
      alt="Agency 2"
      class="w-32 h-32 object-cover"
      data-aos="flip-up" />
    NDRF
```

```
</div>
      <div class="flex flex-col items-center justify-center">
        <img src="{% static 'img/agency_3.png' %}" alt="Agency 3" class="w-
32 h-32" data-aos="flip-up" />
        NIDM
      <div class="flex flex-col items-center justify-center">
        <img src="{% static 'img/agency_4.png' %}" alt="Agency 4" class="w-
32 h-32" data-aos="flip-up" />
        CDRI
      </div>
    </div>
  </div>
  <div class="flex w-full flex-col items-center justify-center my-12 py-12">
    <h2 class="text-3xl font-bold text-center mb-4">Join Us</h2>
    <p
      class="text-xl text-center px-8 italic leading-relaxed max-w-5xl"
      data-aos="fade-up"
      data-aos-anchor-placement="top-bottom"
      data-aos-duration="1000"
      data-aos-easing="ease-in-out">
      "Alone, we can do so little; together, we can do so much." — Helen Keller
    We are always looking to expand our network of agencies and are open to
working with new agencies. If you are
       interested in working with us, please register your agency by clicking the
button below.
    <div class="w-full px-8 flex items-center justify-center">
      <a href="{% url "account_signup" %}" class="w-full max-w-md"><button
class="btn btn-accent w-full max-w-md">Register Your Agency</button></a>
    </div>
```

```
</div>
{% comment %} Footer {% endcomment %}
  <footer class="bg-base-300 px-8 py-12">
    <div class="grid grid-cols-1 text-center md:text-start md:grid-cols-4 gap-8">
         <h3 class="text-2xl font-bold whitespace-nowrap row-span-3 my-auto
md:my-0 md:row-span-1">ResQSquad</h3>
      ul
        class="flex flex-col justify-start items-center md:items-start text-gray-500"
text-sm space-y-2 whitespace-nowrap">
        <
           <a class="hover:underline" href="{% url 'about' %}">About Us</a>
        <1i>>
           <a
             href="https://github.com/RescueRadar"
             class="hover:underline"
             target="_blank"
             rel="noopener noreferrer"
           >The Team</a
           <
                 <a class="hover:underline" href="{% url 'contact' %}">Need
Help?</a>
           ul
           class="flex flex-col justify-start items-center md:items-start text-gray-
500 text-sm space-y-2 whitespace-nowrap">
           <
             <i class="fa-brands fa-facebook"></i>
             <a href="#" class="hover:underline">Facebook</a>
```

```
<
            <i class="fa-brands fa-x-twitter"></i>
            <a href="#" class="hover:underline">Twitter</a>
          >
            <i class="fa-brands fa-instagram"></i>
            <a href="#" class="hover:underline">Instagram</a>
          <
            <i class="fa-brands fa-linkedin"></i>
            <a href="#" class="hover:underline">LinkedIn</a>
          <111
         class="flex flex-col justify-start items-center md:items-start text-gray-
500 text-sm space-y-2 whitespace-nowrap">
          <
            <a href="#" class="hover:underline">Privacy Policy</a>
          <
            <a href="#" class="hover:underline">Terms of Service</a>
          </div>
       ©
2023 ResQSquad. All rights reserved.
    </footer>
{% endblock main %}
           - 50-60 people affected
          </div>
        <div class="text-sm">
```

```
<i class="fa-solid fa-user mr-2"></i>
           Ankit Singh
         <i class="fa-solid fa-phone mr-2"></i>
           9638527410
         >
           <i class="fa-solid fa-map-marker mr-2"></i>
           Chennai, Tamil Nadu
         </div>
     </div>
     <div
      class="bg-base-200 rounded-xl shadow p-6 hover:shadow-lg border-base-
200">
       <div class="flex mb-2 items-center">
         <h3 class="font-bold text-xl">
           Flood
         </h3>
         - 10-20 people affected
         </div>
       <div class="text-sm">
         <i class="fa-solid fa-user mr-2"></i>
           Ankit Kumar
         <i class="fa-solid fa-phone mr-2"></i>
           9638527410
```

```
<i class="fa-solid fa-map-marker mr-2"></i>
Goa City, Goa
</div>
</div>
</div>
</div>
</div>
</div>
</div>
```

4.2 BACKEND

Views.py

```
from django.shortcuts import render, redirect, get_object_or_404
from django.http import HttpResponse
import requests
from django.http import JsonResponse
from agency.models import agency, non_approved_agency,Post
from django.contrib import messages
from django.contrib.auth.decorators import login_required
from .decorators import agency_req
from .forms import ContactForm, PostForm
from django.core.mail import send_mail
import os
from django.template.loader import render_to_string
from django.core.mail import EmailMessage
import folium
from django.db.models import Q
# Create your views here.
def home(request):
  if request.user.is_authenticated:
    if agency.objects.filter(user=request.user).exists():
```

```
return redirect('dashboard')
  return render(request, 'home.html')
def about(request):
  return render(request, 'about.html')
def contact(request):
  if request.method == 'POST':
    form = ContactForm(request.POST)
    if form.is_valid():
       first_name = form.cleaned_data['first_name']
       last_name = form.cleaned_data['last_name']
       email = form.cleaned_data['email']
       message = form.cleaned_data['message']
       EmailMessage(
         'New contact form submission',
         render_to_string('email/contact_form.html', {
            'first_name': first_name,
            'last_name': last_name,
            'email': email,
            'message': message
         }),
         os.environ.get('EMAIL_HOST_USER'),
         [os.environ.get('EMAIL_HOST_USER')],
         reply_to=[email]
       ).send()
       return redirect('home')
    else:
       print(form.errors)
  form = ContactForm()
  return render(request, 'contact.html',{
```

```
'form': form
  })
def user_report(request):
  return render(request, 'user_report.html')
def error_message(request, error_message):
  return render(request, 'error_message.html', {'error_message': error_message})
def profileEdit(request):
  return render(request, 'profileEdit.html')
@login_required
@agency_req
def victims_portal(request):
  return render(request, 'victims_portal.html')
@login_required
@agency_req
def rooms(request):
  return render(request, 'rooms.html')
@login_required
@agency_req
def chatroom(request):
  return render(request, 'chatroom.html')
@login_required
def agencyPage(request):
  return render(request, 'agencyPage.html')
@login_required
@agency_req
def dashboard(request):
  q=request.GET.get('q') if request.GET.get('q') != None else "
```

```
posts = Post.objects.filter(
         Q(title__icontains=q) |
         Q(content__icontains=q)
       )
  return render(request, 'dashboard.html', {'posts': posts})
@login_required
def user_profile(request):
  return render(request, 'user_profile.html')
def profile(request):
  form_submitted = False
  if request.method == "POST":
    name = request.POST.get('name')
    address = request.POST.get('address')
    phone = request.POST.get('phone')
    email = request.user.email
    website = request.POST.get('website')
    about = request.POST.get('about')
    city = request.POST.get('city')
    state = request.POST.get('state')
    manpower = request.POST.get('manpower')
    volunteers = request.POST.get('volunteers')
    form_submitted=True
      if not all([name, address, phone, website, about, city, state, manpower,
volunteers]):
       messages.error(request, "All fields must be filled.")
       return redirect('profile')
    non_approved_agency.objects.create(
       user=request.user,
```

```
name=name,
       address=address,
       phone=phone,
       email=email,
       website=website,
       about=about,
       city=city,
       state=state,
       manpower=manpower,
       volunteers=volunteers
    )
    messages.success(request, "Profile information saved successfully.")
    form_submitted=True
     return redirect('request_submitted', form_submitted=str(form_submitted)) #
Convert to string
  else:
    if non_approved_agency.objects.filter(user=request.user).exists():
       return redirect('request_submitted', form_submitted=form_submitted)
    elif agency.objects.filter(user=request.user).exists():
       return redirect('home')
    return render(request, 'profile.html', {'form_submitted': form_submitted})
def request_submitted(request, form_submitted):
                render(request,
                                   'request_submitted.html',
                                                               {'form_submitted':
       return
form_submitted})
@login_required
def all_agencies(request):
  all_agencies = agency.objects.all()
  return render(request, 'all_agencies.html', {'all_agencies': all_agencies})
@login_required
def post_detail(request, pk):
  post = get_object_or_404(Post, pk=pk)
```

```
return render(request, 'post_detail.html', { 'post': post})
@login_required
@agency_req
def post_new(request):
  if request.method == "POST":
    form = PostForm(request.POST)
    if form.is_valid():
       post = form.save(commit=False)
       post.agency = agency.objects.get(user=request.user)
       post.save()
       return redirect('post_detail', pk=post.pk)
  else:
    form = PostForm()
  return render(request, 'post_edit.html', {'form': form})
@login_required
@agency_req
def post_edit(request, pk):
  post = get_object_or_404(Post, pk=pk)
  if post.agency.user != request.user:
      return error_message(request, 'You are not allowed to edit other agency
posts!')
  if request.method == "POST":
    form = PostForm(request.POST, instance=post)
    if form.is_valid():
       post = form.save(commit=False)
       post.save()
       return redirect('post_detail', pk=post.pk)
  else:
    form = PostForm(instance=post)
  return render(request, 'post_edit.html', {'form': form})
```

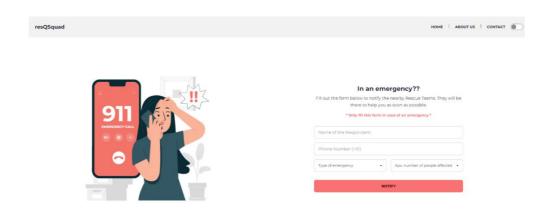
User Interface

5.1 Screen Shot

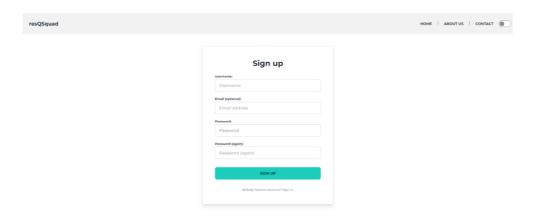
Home Page



Emergency Situation report



Sign-Up page(For agency)



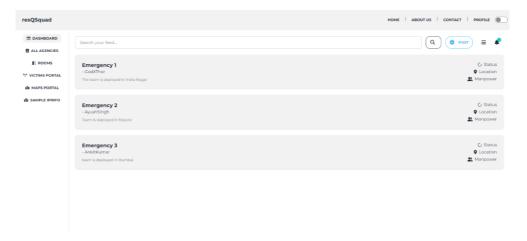
Agency Registration



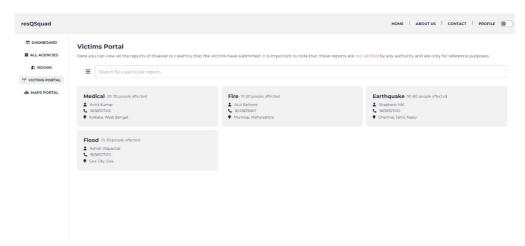
Sign-in Page



Dashboard



Victim Portal



All Agency



Agency Location



Conclusion

A Lifeline for Disaster Response ResQSquad emerges as a beacon of hope in the chaotic aftermath of disasters. This mini-application, built with Python and Django on the back end and utilizing HTML and Django templates on the front end, strives to revolutionize communication during critical response efforts.

By establishing a real-time communication platform, ResQSquad empowers rescue teams to swiftly request backup and coordinate resource deployment with authorized agencies. This streamlined communication eliminates delays and fosters a unified response, ultimately saving lives in those precious moments when every second counts.

Looking Ahead:

While this initial project serves as a solid foundation, future iterations of ResQSquad can be further enhanced by:

- 1. **Integrating real-time mapping and location sharing:** This would allow for a more comprehensive situational awareness for both rescue teams and coordinating agencies.
- 2. **Developing mobile app functionality:** Extending ResQSquad to mobile devices would provide greater accessibility and convenience for rescue teams on the ground.
- 3. **Enhancing security measures:** Implementing robust security protocols will be crucial as the platform scales and handles increasingly sensitive data.

ResQSquad holds immense potential to transform disaster response by bridging the communication gap and fostering a more coordinated effort. With ongoing development and collaboration, this mini-application can evolve into a powerful tool, saving lives and minimizing damage in the face of unforeseen disasters.

References

Django documentation https://docs.djangoproject.com/en/5.0/

Bootstrap https://getbootstrap.com/docs/4.1/getting-

started/introduction/

GitHub https://docs.github.com/en

Ipinfo https://ipinfo.info/documentation

Stackoverflow https://stackoverflow.com/documentation/

Python Documentation https://www.python.org/doc/

PostgreSQL https://www.postgresql.org/docs/

Plagiarism Report



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Submission Information

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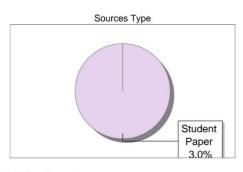
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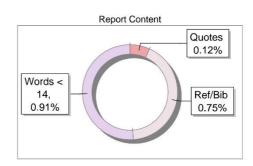
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2	Submitted to Visvesvaraya Technological University, Belagavi	1	Student Paper
3	Submitted to Visvesvaraya Technological University, Belagavi	1	Student Paper

MATCHED SOURCES