PinPoint

CSC1118 - Group Interview

Demo Overview

- What is PinPoint?

- Business Case

- Technical Delivery

- Future Planning

- Prototype Showcase

Team Overview

- Collaborative two-person development team;
  - Robert Maloney
  - Michael Beirne-Ponomarev
- Shared responsibility across design, development, and business strategy.
- Incremental workflow with regular check-ins with supervisor.
- Balanced skill sets: frontend, backend, UX, and commercial focus.

What is PinPoint?

- Built around a live interactive map.

- Social and business event-planning app.

- Combines event creation, RSVP, chat, and discovery.

Problem Statement

- Event planning is fragmented across multiple platforms.

- Group coordination is often confusing and inefficient.

- Local events are hard to discover without targeted search.

Solution

- Centralised platform for event creation, invites, and chat.

- Interactive map to discover and join events.

- Custom visibility as public or private.

- Real-time group chats linked to each event.

Business Model & Market Opportunity

- Free platform with optional donation.
- Sponsored pins for local businesses.
- Data insights for B2B monetisation.
- Google Calendar export integration.

- Social groups and families.
- Marketing managers & small businesses.
- University clubs and societies.
  - **TAM:** 938M
  - **SAM:** 375M
  - **TM:** 93.75M

Financial Plan

Year 1

OVERVIEW	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	
CUMMULATIVE EXPENSES	€ 4,246.97	€ 4,493.94	€ 5,419.15	€ 11,844.36	€ 24,219.57	€ 38,405.78	€ 51,050.97	€ 62,803.66	€ 76,921.82	€ 93,317.68	€106,740.04	€121,199.40	
CUMMULATIVE INCOME	€ 23,000.00	€ 48,000.00	€ 48,000.00	€ 63,000.00	€ 63,000.00	€ 68,700.00	€120,010.00	€121,570.00	€124,130.00	€127,680.00	€131,780.00	€137,780.00	
STATUS	€ 18,753.03	€ 43,506.06	€ 42,580.85	€ 51,155.64	€ 38,780.43	€ 30,294.22	€ 68,959.03	€ 58,766.34	€ 47,208.18	€ 34,362.32	€ 25,039.96	€ 16,580.60	€ 16,580.60

Year 2

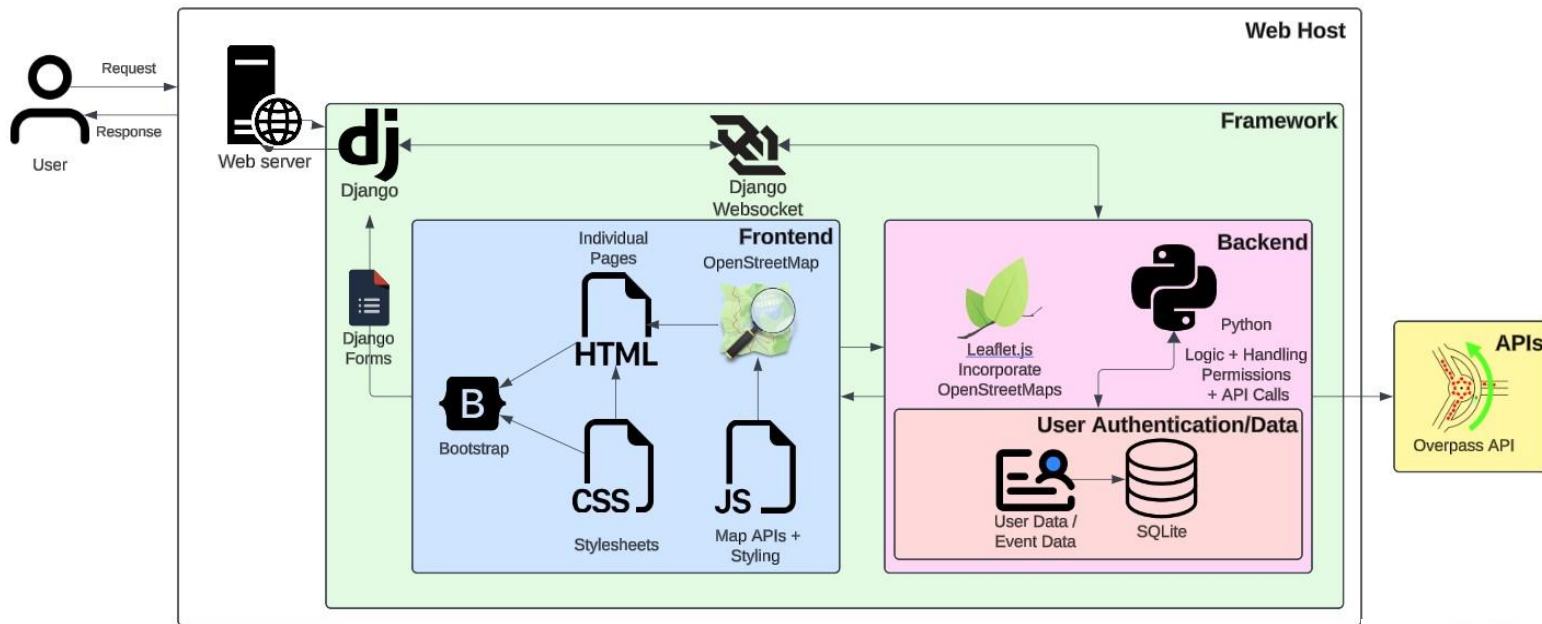| OVERVIEW	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	
CUMMULATIVE EXPENSES	€ 12,158.56	€ 24,547.12	€ 37,350.68	€ 56,234.24	€ 70,157.80	€ 84,481.36	€ 98,249.92	€ 111,788.48	€ 127,511.64	€ 141,629.80	€ 156,172.16	€ 172,704.52	
CUMMULATIVE INCOME	€ 20,620.60	€ 25,660.60	€ 31,200.60	€ 57,740.60	€ 67,280.60	€ 76,820.60	€ 87,860.60	€ 97,900.60	€ 113,960.60	€ 126,520.60	€ 139,620.60	€ 195,720.60	
STATUS	€ 8,462.04	€ 1,113.48	€ (6,150.08)	€ 1,506.36	€ (2,877.20)	€ (7,660.76)	€ (10,389.32)	€ (13,887.88)	€ (13,551.04)	€ (15,109.20)	€ (16,551.56)	€ 23,016.08	€ 23,016.08

Year 3

OVERVIEW	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	
CUMMULATIVE EXPENSES	€ 15,669.36	€ 31,338.72	€ 48,958.08	€ 69,742.44	€ 86,256.80	€103,836.16	€119,965.52	€136,094.88	€154,134.24	€170,723.60	€187,382.96	€207,232.32	
CUMMULATIVE INCOME	€ 36,016.08	€ 49,016.08	€ 67,016.08	€ 80,516.08	€ 95,016.08	€115,016.08	€130,016.08	€145,016.08	€167,016.08	€184,016.08	€200,016.08	€224,016.08	
STATUS	€ 20,346.72	€ 17,677.36	€ 18,058.00	€ 10,773.64	€ 8,759.28	€ 11,179.92	€ 10,050.56	€ 8,921.20	€ 12,881.84	€ 13,292.48	€ 12,633.12	€ 16,783.76	€ 16,783.76

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Competitive Advantage

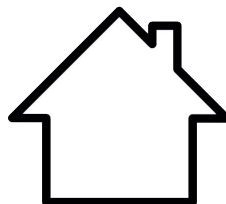|	Strengths	Weaknesses	Compared to PinPoint
BeReal.	- Focus on Authentic Experiences. - Collaborate with Friends when together. - Daily Notifications. - Interactive UI.	- Limited Feature Set. - Lack of Communication. - Low Engagement.	- BeReal captures spontaneous daily moments but lacks planning tools. - PinPoint maintains authenticity while enabling event creation and real-world coordination.
f	- Enormous User Base. - Calendar Syncing. - Reminders through notifications. - Strong Promotional Tools.	- Too large. - Lower trust among younger audiences. - More Formal Events as opposed to one-off hangouts.	- Facebook is cluttered and impersonal, catering to broad audiences. - PinPoint offers focused, event planning within close social circles.
Google Maps	- Detailed and reliable mapping. - High trust in location accuracy and business reviews. - Integrated with search and navigation.	- Not designed for social planning. - Lacks group coordination features. - Focuses more on business discovery than social experiences.	- Google Maps helps find places but lacks social planning tools. - PinPoint combines discovery with real-time collaboration and event-specific chat.

System Architecture

Database Design & Models

- SQLite used for development.

- Key models: User, Event, RSVP, Message, FriendRequest.

- Relationships use Django's ORM and foreign keys.

- Chat messages and events tied to specific users and pins.

UI/UX Design

- Clean, familiar interface using Bootstrap.

- Dark theme with accessibility contrast.

- Consistent iconography and navigation bar.

Source Code Highlights

Map Rendering

```javascript
function initializeMap(lat, lon) {
    map = L.map('map').setView([lat, lon], 13);

    L.tileLayer('https://{s}.tile.openstreetmap.org/{z}/{x}/{y}.png', {
        maxZoom: 19,
        attribution: '&copy; <a href="https://www.openstreetmap.org/copyright">OpenStreetMap</a>
contributors'
    }).addTo(map);

    // Save user's location globally
    userLat = lat;
    userLon = lon;

    // User location marker and accuracy circle - Moved from out of function to inner
    userMarker = L.circleMarker([userLat, userLon], {
        radius: 8,
        color: '#3388ff',
        fillColor: '#3388ff',
        fillOpacity: 1
    }).addTo(map);

    accuracyCircle = L.circle([userLat, userLon], {
        radius: 1500,
        color: '#3388ff',
        fillColor: '#3388ff',
        fillOpacity: 0.2
    }).addTo(map);

    // Add event pins
    const today = new Date();
    events.forEach(event => {
        const markerIcon = new L.Icon({
            iconUrl: event.in_showcase
                ? '{% static "icons/showcase_pin.png" %}'
                : event.ongoing
                    ? '{% static "icons/ongoing_pin.png" %}'
                    : '{% static "icons/pin.png" %}',
            iconSize: [32, 32],
            iconAnchor: [16, 32],
            popupAnchor: [0, -32]
        });

        const marker = L.marker([event.lat, event.lng], { icon: markerIcon }).addTo(map);
```

- Initializes the map .
  - User's current location (lat, lon).
- Loads OpenStreetMap.
- Stores coordinates for later use.
- Adds a circle marker for the user's nearby location.
  - 1.5km radius accuracy circle.
- Iterates through event data.
- Uses different icons to represent event types.

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Event Creation (Public)

```python
@login_required
def public_event_create(request):
    if request.method == "POST":
        form = EventForm(request.POST)

        if form.is_valid():
            event = form.save(commit=False)
            event.created_by = request.user
            event.is_public = True

            # Handle tags
            try:
                import json
                tag_data = request.POST.get('tags', '[]')
                event.tags = json.loads(tag_data)
            except:
                event.tags = []

            event.in_showcase = request.POST.get('in_showcase') == 'True'
            event.save()
            form.save_m2m()
            return redirect('event_detail', event_id=event.id)
    else:
        latitude = request.GET.get('latitude', '')
        longitude = request.GET.get('longitude', '')
        place_name = request.GET.get('name', '')
        form = EventForm(initial={
            'latitude': latitude,
            'longitude': longitude,
            'location_name': place_name,
            'name': place_name,
            'is_public': True,
            'tags': '[]'
        })
        form.fields['invitees'] = request.user.friends.none()

    return render(request, 'public_event_create.html', {'form': form})
```

- Authenticated users can create public events through this view.
- Sets is_public = True and links the event to the logged-in user.
- Optionally checks if the event should appear in the showcase.
- Pre-fills data from the query parameters.
- Hides the invitees field (since public events don't target individuals).

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RSVP Handling

```
{% if user != event.created_by %}
        <form method="POST" action="{% url 'rsvp_event' event.id %}" class="mt-4">
            {% csrf_token %}
            <div class="input-group">
                <select name="status" class="form-select">
                    <option value="yes">Yes</option>
                    <option value="no">No</option>
                    <option value="maybe">Maybe</option>
                </select>
                <button type="submit" class="btn btn-primary">RSVP</button>
            </div>
        </form>
        {% endif %}

        <div class="card p-3 bg-secondary mt-4">
            <h5 class="mb-3">RSVP Responses</h5>
            <p class="mb-2"><strong class="text-success">Yes:</strong>
                {% for rsvp in all_rsvps %}
                    {% if rsvp.status == "yes" %} {{ rsvp.user.username }}{% if not forloop.last %},
{% endif %}{% endif %}
                {% endfor %}
            </p>
            <p class="mb-2"><strong class="text-danger">No:</strong>
                {% for rsvp in all_rsvps %}
                    {% if rsvp.status == "no" %} {{ rsvp.user.username }}{% if not forloop.last %},{%
endif %}{% endif %}
                {% endfor %}
            </p>
            <p><strong class="text-warning">Tentative:</strong>
                {% for rsvp in all_rsvps %}
                    {% if rsvp.status == "maybe" %} {{ rsvp.user.username }}{% if not forloop.last
%},{% endif %}{% endif %}
                {% endfor %}
            </p>
        </div>
```

- Displays an RSVP form.
  - Users not hosting the event.
- Allows selection of attendance status:
  - Yes, No, Tentative.
- Submits status via POST.
- Below the form, responses are shown in a styled card.
- Categorizes and lists attendees.
- Clear view of attendee interest and availability.

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Real-Time Chat (Django Channels)

```python
class ChatConsumer(AsyncWebsocketConsumer):
    async def connect(self):
        self.event_id = self.scope['url_route']['kwargs']['event_id']
        self.room_group_name = f"chat_{self.event_id}"

        await self.channel_layer.group_add(
            self.room_group_name,
            self.channel_name
        )
        await self.accept()

        messages = await self.get_chat_history(self.event_id)
        await self.send(text_data=json.dumps({
            "type": "chat_history",
            "messages": messages
        }))

    async def disconnect(self, close_code):
        await self.channel_layer.group_discard(
            self.room_group_name,
            self.channel_name
        )

    async def receive(self, text_data):
        data = json.loads(text_data)
        user = self.scope["user"]

        if not user.is_authenticated:
            await self.close()
            return

        if 'message' in data and data['message']:
            message = data['message']
            await self.save_message(user, message, self.event_id)
            await self.channel_layer.group_send(
                self.room_group_name,
                {
                    'type': 'chat_message',
                    'message': message,
                    'username': user.username
                }
            )
```

- WebSocket connections.
- Group tied to each event ID.
- Chat history upon connection.
- Processes incoming messages.
- Broadcasts messages in real-time.
- Removing users from the group on disconnect.

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Conclusions

Challenges Faced

- Real-time chat sync across devices.

- Timezone handling in event expiry.

- Mobile responsiveness and UI consistency.

Scalability & Future Plans

- Move to PostgreSQL + PostGIS.

- Switch to Google Maps API.

- Containerisation with Docker for cloud deployment.

Conclusion & Final Thoughts

- PinPoint solves a real, everyday problem.

- Combines multiple tools into one streamlined app.

- Scalable, with strong future potential.

- Built from the ground up with real users in mind.

Thank You for your time!

Let's move onto the demo!