Satellite Image Change Detection
User Perspective & Daily Problems

From a User's Perspective: How It Actually Works

1 Step 1: User Defines "What & Where"

Simple Web Interface

```
   Satellite Change Detector


   Select Area to Monitor:
[_____________________________]
 (Type address or draw on map)

   Compare These Dates:
 From: [Jan 2023  ]  To: [Jan 2024  ]

   What to Detect:
    Deforestation
    New Construction
    Water Body Changes
    Agricultural Changes
    Road Development

[  Analyze Changes]
```

User Actions

- Clicks on map or types an address (e.g., Amazon rainforest near Manaus, Brazil)
- Draws a box around area of interest
- Selects time period to compare
- Clicks "Analyze"

2 Step 2: System Processing

Behind the Scenes

The system performs the following tasks:

- Fetches satellite images from NASA/ESA
- Removes clouds and aligns images
- Runs machine learning models
- Performs change detection

Processing time ranges from 30 seconds to 5 minutes.

Progress Display

```
Downloading satellite images...
Preprocessing data...
Running AI analysis...
Generating report...
```

3 Step 3: Visual Results

Before and After View

```
   Change Detection Results



    Jan 2023          Jan 2024
     BEFORE            AFTER

    [   ]          [   ]



   CHANGES DETECTED:
   3.2 hectares deforested
   1.8 hectares new construction
   0.5 hectares water body shrunk

 [  Download Report] [  Set Alert] [  Share]
```

Displayed Information

- Side-by-side comparison images
- Highlighted change regions
- Area measurements in hectares/acres
- Confidence scores
- Zoomable locations

4 Step 4: Alert Setup

Alert Interface

```
   Alert Me When:

  Any deforestation > 1 hectare
  New construction detected
  Water levels drop > 20%

   Send alerts to:
[user@email.com]

   Check frequency:
  Daily    Weekly    Monthly

[  Save Alert]
```

Alert Workflow

- System checks data periodically
- Detects changes beyond thresholds
- Sends email notifications
- User accesses detailed reports

Conclusion

This system enables users to easily monitor environmental and infrastructural changes using satellite imagery. Through an intuitive interface, automated processing, and alert mechanisms, it supports decision-making in environmental protection, urban planning, and resource management.