My Guardian: A Pervasive Guardian Service

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My Guardian

- Introduction
- Issue
- Existing Solutions
- Predesign
- Users Survey
- System Design
- Synthesis
- Conclusion
Introduction
What’s Alzheimer and Dementia?

DEMENTIA

- Vascular Dementia
- Parkinson
- Lewy bodies
- Creutzfeldt Jacob
- Alzheimer

Introduction
Why do we need « Geolocation »?

A woman aged 75 years disappeared. Anyone who can help find this lady can communicate to 0223212222
Topic Presentation

**Issue:**
« How does geotagging service offer a reliable and sophisticated solution for caregivers of sufferers of Alzheimer? »

Existing Solutions

- **Bracelets**
  - Columba
  - Vega
  - Vega GPS Shoe
  - Locate Box Solo
  - Ekotek

- **Watches**
  - Nu.m8
  - Freedom GPS
  - Limmex
  - Kéruvé pro

- **Medallions**
  - Helpi A320

- **Phones**
  - Témo
  - MobiTel GPS
  - Aladia 3000
  - Aladia Co

- **Geophone**
  - Pack Senior
### My Guardian

## Existing Solutions

### Comparison criteria

<table>
<thead>
<tr>
<th>Geolocation technology</th>
<th>Dimensions</th>
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<tbody>
<tr>
<td>Type</td>
<td></td>
</tr>
<tr>
<td>Followed the route in real time</td>
<td>Quality of the instruction manual</td>
</tr>
<tr>
<td>Setting the device</td>
<td></td>
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<tr>
<td>Right of caregivers to manage the secure area</td>
<td>Information when the person leaves the secure area</td>
</tr>
<tr>
<td>Launch a voice call from the device</td>
<td>Quality of the micro</td>
</tr>
<tr>
<td>Number of programmable numbers</td>
<td>Listening quality</td>
</tr>
<tr>
<td>Direct call of the caregiver</td>
<td>Right of caregivers to manage phone numbers</td>
</tr>
<tr>
<td>Sensitivity and access keys</td>
<td>Opportunity for the distributor to manage the phone numbers</td>
</tr>
<tr>
<td>Information on the battery</td>
<td>Opportunity for the distributor to manage the secure areas</td>
</tr>
<tr>
<td>Autonomy of the device</td>
<td>The secure area up to how many kilometres</td>
</tr>
<tr>
<td>Availability of support</td>
<td>Reliability at the network level</td>
</tr>
<tr>
<td>Weight</td>
<td>The device is used for geolocation inside or outside</td>
</tr>
<tr>
<td>Price</td>
<td>How many people suffering from Alzheimer use this device</td>
</tr>
<tr>
<td>Locking mechanism</td>
<td>SIM Card</td>
</tr>
</tbody>
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### Existing Solutions

#### Battery
- Simplicity and quick charge
- Sensor which puts the device to sleep after one minute of no movement

#### Help desk assistance
- High availability
- No answer to every alert call

#### Secure area
- Unlimited numbers of secure areas
- No secure area

#### Monitor of location
- Real time monitoring
- No real time monitoring

#### Design
- Good design
- Small / not heavy
- It cannot be cut
- Complexity of the manual

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**Predesign**  
The proposed predesign for My Guardian

**My Guardian Service**
- Call
- Low battery
- Secure area
- Emergency button
- Fall
- Device location
- Device removed

**If families are absent or busy, the calls and alerts are forwarded to**
- Caregivers
- Help desk assistance

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**Users Survey**
Families and Care Homes
Users Survey

22 Care Homes

- Alzheimer age [80…89 years], 59% Women
- 90.9% need the presence of caregivers the whole day
- 81.8% against the existence of help desk assistance
- 45.45% alert by SMS / 13.63% alert by email / 40.9% alert by SMS and email
- 77% prefer a bracelet
- 90% are for sending an SMS for localization
- For 9% of these caregivers, this device represents a threat
- For 68.18% of caregivers, it represents a useful aid
- For 13.63% of caregivers it is a lack of freedom

Users Survey

4 Families

- Alzheimer average age: 81 years
- Any device of geolocation
- 2 out of 4 respondents would prefer their elderly people's illness remains in family without involving a help desk assistance
- Sending an SMS and receiving an automatic reply with the location details
- Useful aid
- 3 families: alert by SMS
- 1 family: alert by SMS and email
Users Survey

Users comments

✓ « Un dispositif discret en terme de taille »
✓ « C'est une contention au même titre que les barrières de lits »
✓ « Surveillance policière »
✓ « Eviter les longues procédures de recherches, Wi-Fi peut être un inconvénient pour la santé»
✓ « Phase du sommeil»

System Design
The design proposed for My Guardian

My Guardian Service
- My Guardian Client
  - Call
  - Low battery
  - Secure area
  - Emergency button
  - Fall
  - Device removed
  - Device location

My Guardian Receiver
- Call
- Receiving SMS
- Receiving email
- Sending SMS

My Guardian Web Interface
- Program numbers to be called
- Level of battery charge
- Program secure area
- Real time track

If families are absent or busy, the calls and alerts are forwarded to:
- Caregivers
- Help desk assistance
- Police

If they cannot locate the person:
- If they cannot locate the person

Elderly person
Synthesis

- Easily reconfigurable / Automatic answer
- Sensor to monitor the phase of sleep / Unobtrusive
- A powerful battery
- SMS for location
- Alert if the battery is low, if the senior falls, if he leaves the predefined area
- Automatic recording of data
- 3 techniques of geolocation (GPS, GSM, Wi-Fi)
- Emergency button
- Powerful memory
- Buttons for calling the programmed numbers
- LED
- No locking mechanism
- Altimeter
- Web interface / Help desk assistance

Conclusion

- Existing solutions, Geolocation, Dementia and Alzheimer
- Users survey / Real interest
- Design of a geolocation based solution / Reliable device
Questions?