

Report Healthcare Solution

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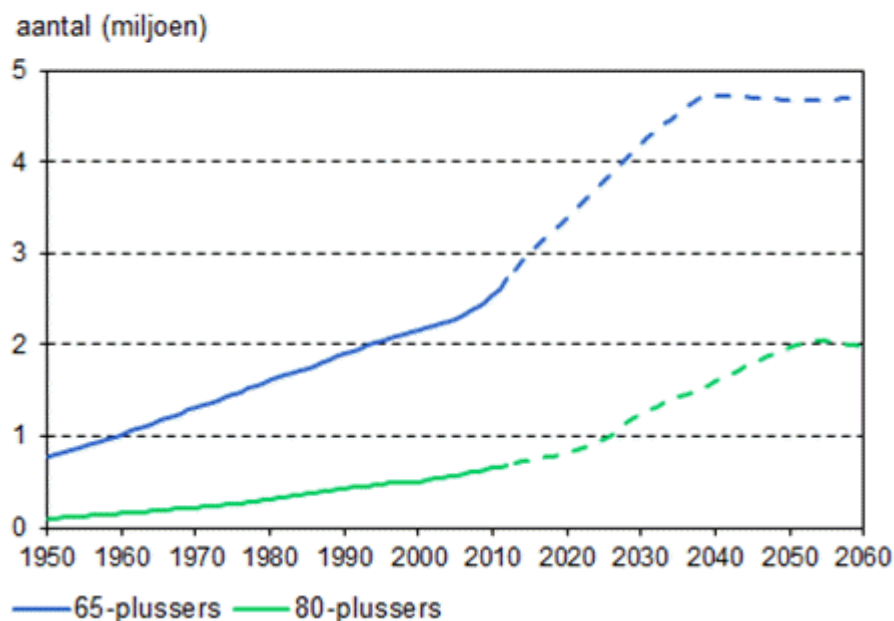
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1 Introduction

1.1 Main Issue

Figuur 1: Aantal 65- en 80-plussers, 1950-2012 (meetpunt 1 januari) en prognose aantal 65- en 80-plussers, 2013-2060 (Bron: CBS Bevolkingsstatistiek; CBS Bevolkingsprognose voor 2013-2060).



The amount of elderly people is increasing quickly in the Netherlands. [1] The nursing homes can't keep up with the pace and have structural issues. They don't have enough experienced staff and there are a lot of problems with the medication delivery. The elderly also feel that they don't have enough freedom. [2]

Because of that, there is a lot of pressure on the caregivers. If we don't reach a solution soon, there will be few places left for new elderly in nursing homes or the quality of care will be lower.

1.2 Problems With Doors

Many of the elderly have difficulties with moving through the nursing home. There are a lot of doors where, for example, elderly

in wheelchairs can get stuck because the doors close too quickly. There are also doors which won't open automatically, so they require a caregiver to open it. All these problems take valuable time from the caregiver, who could be doing a lot more important things than opening doors. They also take a lot of time and trouble from the elderly.

1.3 Emergency Alert Problems

There are also elderly people who have trouble with the emergency alert buttons in the nursing homes. Some of the elderly are paralyzed and have a lot of pain when they're laying in a bad position in bed at night. At those times, they can't reach the emergency alert button and have to wait till morning before they're assisted.

1.4 Facial recognition and Emotion recognition

The way to solve these problems is to use facial recognition for automatically unlocking and opening doors. With facial recognition you could also use emotion recognition to see if elderly people are in pain and need care.

2 Solution

2.1 Goals

The solution has multiple goals.

The first goal is to make sure the nurses spend less time on opening doors and assisting the elderly through the nursing home.

The second goal is to give the elderly more freedom through the building. They don't have to call for a nurse every time for opening doors.

The third goal is to detect quickly when an elderly is in pain, so they can be assisted.

2.2 How It Works

All doors have an camera above them connected to a main server. The server runs facial recognition software on all the camera's. The server is also connected to all the doors so they can open automatically.

The server is trained with images of the elderly and the staff living or working inside the nursing home. Every person can have different rights. For example, only the staff can go through staff doors and the demented elderly can't go outside without permission.

When someone is standing in front of the door, it will detect the face and will open the door if the person has the rights to go in. If he or she doesn't, the door will stay closed.

3 What's New?

4 Conclusion

References

- [1] CBS, "Bevolkingspiramide." <https://www.cbs.nl/nl-nl/visualisaties/bevolkingspiramide>, 2017.
- [2] NRC, "Verzorgingshuizen kunnen de structurele problemen niet oplossen." <https://www.nrc.nl/nieuws/2014/11/08/verpleeg-en-verzorgingstehuizen-kunnen-structurele-problemen-niet-oplossen>, 2014.