Medicine Intake Tracker for Smart TV

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Outline

1. Estimate Smart TV applicability for mHealth
2. Propose specification for medicine intake tracker application for Smart TV

Smart TV

OR

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Advantages over ordinary TV

- Can run user applications
- Have Internet access

Relevance of Smart TV for mHealth

Roles of Smart TV were determined in the previous work

Roles of Smart TV

- Visualization device
- Interaction point
- Data processor
- Information storage
- Source of data

M. Yusufov and I. Kornilov, "Roles of smart TV in IoT-environments: a survey" *Proceedings of the 13th Conference of Open Innovations Association FRUCT and Seminar on e-Tourism. Pertozavodsk, Russia, 2013*

Roles of Smart TV in mHealth

Visualization device

Big screen suitable for people with poor eyesight and displaying of significant medical information

Interaction point

Can be part of a complex mHealth system and allows to control it via remote control

Roles of Smart TV in mHealth

Data processor

Has enough processing power to detect deviations of user measurements

Information storage

Can store measurement data and use it to create personalized health model

Source of data

Provides means of measurement receiving from medical sensors and can send it for further processing

Motivation for application developers

To develop effective medical application developers should implement following:

- Intake and measurement tracking
- Measurement data analyzing
- Handling of emergency situations
- Statistics and report generation
- Way to configure the application
- Separate tracks for each person

Medicine Intake Tracker application

Implemented components

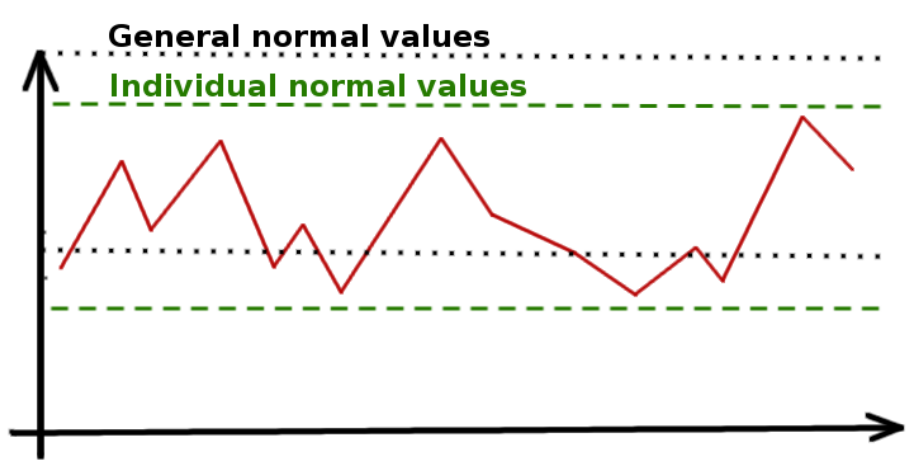
- Database
- Schedule setup screen
- Notifications dialog
- Track screen
- Track log screen

Intake and measurement tracking

- User may forget about scheduled medicine intake or treatment
- Application can help to avoid it by showing notification
- Application reminds again in more insistent way if user not reacts with the reminder

Measurement data analyzing

- Normal vital signs values of a patient may differ form general ones
- Single measurement does not show all aspects of patient`s health
- Application stores previous measurements and can calculate personal normal values



Handling of emergency situations

Danger degrees

1. Deviation is slight and it first occurrence
2. Continuous slight deviation
3. Severe slight deviation

Application reactions

1. Show notification
2. Suggest to attend a hospital and send measurement result to physician
3. Send an emergency signal to the ambulance, the physician and relatives

Statistics and report generation

- Generated periodically or on demand
- Contains raw and processed data

Raw data

- Measurement values
- Timestamps

Processed data

- Mean time between notification and the medicine intake
- Amount of completely missed intakes
- Influence of medications on vital signs

Way to configure the application

- Through configuration interface of the application
- From another device by using peer-to-peer connection
- Through centralized web service

Separate tracks for each person

- Several patient may use application on one Smart TV device
- Notification show patient photo to avoid medications mix up
- Notification may be grouped when several event are occur

Conclusion

- Estimated roles of Smart TV in mHealth
- Indicated features for medical application developers
- Developed medicine intake tracker application
- Specified ways to improve it