Interactive Learning Exercise for Children With Autism

A TRAIN GAME

JACOB KARSTENSEN WORTMANN JESPER RIEMER ANDERSEN
NICKLAS ANDERSEN SIMON REEDTZ OLESEN



AGENDA

GIRAF

GAME DESIGN

OPENGL ES

GAME IMPLEMENTATION

CONCLUSION

DEMONSTRATION

GIRAF

SIMON REEDTZ OLESEN



THE GIRAF PROJECT

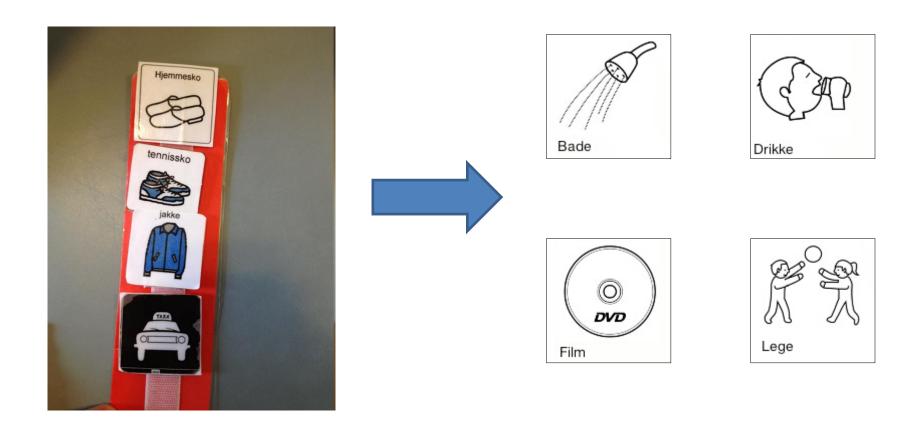
VISION

AGILE DEVELOPMENT

SCRUM WEEKLY MEETINGS ISSUE TRACKING GIT

COMMITTEES

PICTOGRAMS



TRAIN

PROBLEM STATEMENT:

"IN WHAT WAYS CAN WE AID THE PEDAGOGUES IN THEIR WORK WITH CHILDREN WITH AUTISM, BY DIGITALIZING A PHYSICAL EXERCISE ONTO AN ANDROID TABLET?"

Game Design

NICKLAS ANDERSEN



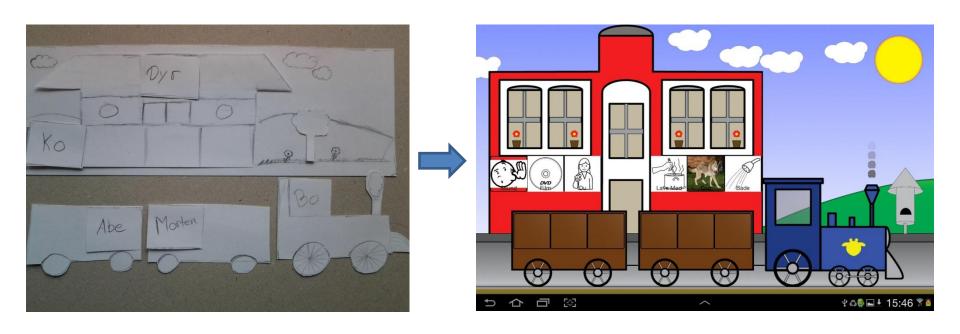
TRAIN DESIGN

IDEA

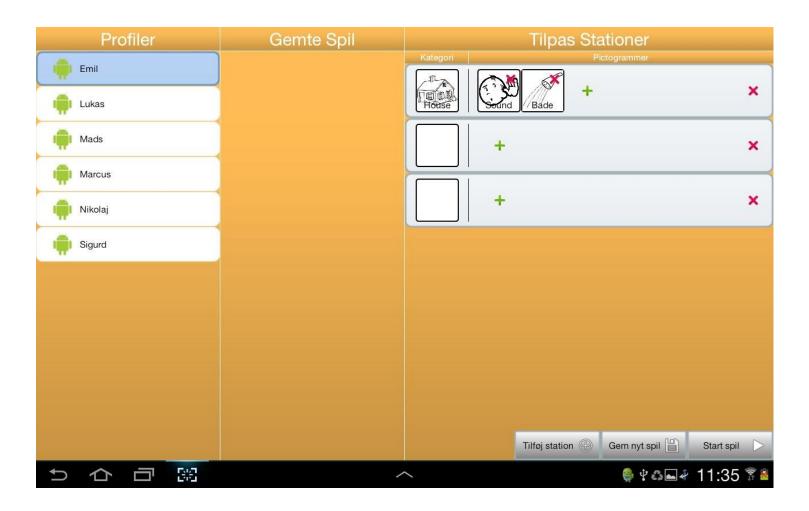
TOVE SØBY

PROTOTYPE

PROTOTYPE



GAME CUSTOMIZATION



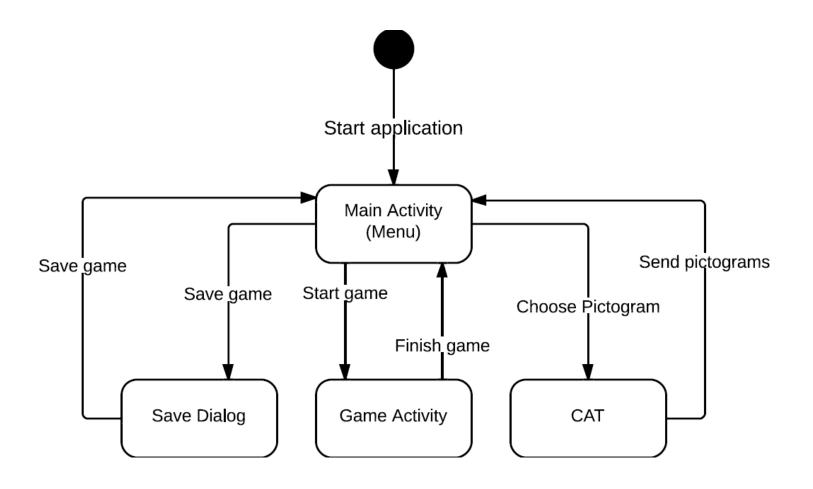
CONFIGURATIONS

GAME CONFIGURATIONS

STATION CONFIGURATIONS

GameConfiguration StationConfiguration -guardianID : long -category : long -gameName: string -acceptPictogramste: ArrayList<Long> -childID: long +StationConfiguration(in categoryID : long) -stations: ArrayList<StationConfiguration> -StationConfiguration(in in : Parcel) +GameConfiguration(in gameName : string, in childID : long, in guardianID : long) +addAcceptPictogram(in id : long) : void -GameConfiguration(in in : Parcel) +removeAcceptPictogram(in id : long) : void +addStation(in stations : StationConfiguration) : void 1...* 1 +getAcceptPictograms(): ArrayList<Long> +setStations(in stations : ArrayList<StationConfiguration>) : void +setCategory(in id : long) : void +getStations(): ArrayList<StationConfiguration> +getCategory(): long +getGameName(): string +writeToParcel(inout out : Parcel) : void +writeToParcel(inout out : Parcel) : void +writeStation(): string +writeConfiguration(): string

CONFIGURATIONS



OpenGL ES

JESPER RIEMER ANDERSEN

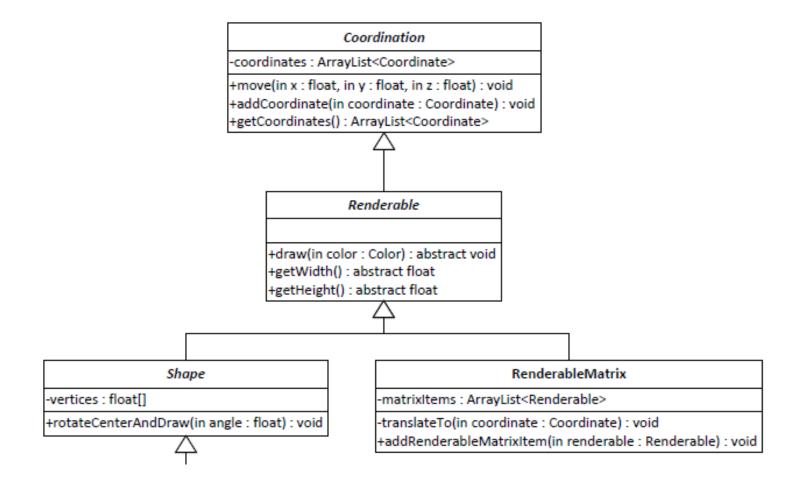


OPENGLES

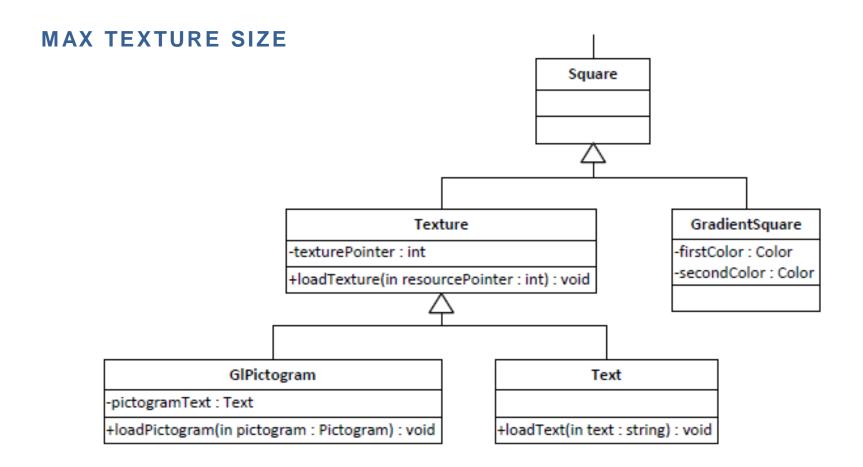
ALTERNATIVE: SURFACE VIEW

OPENGL ES
VERSION 1.X

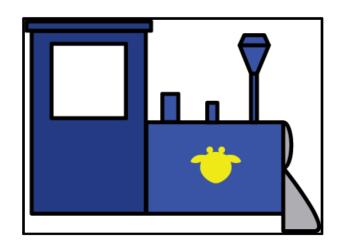
RENDERABLES



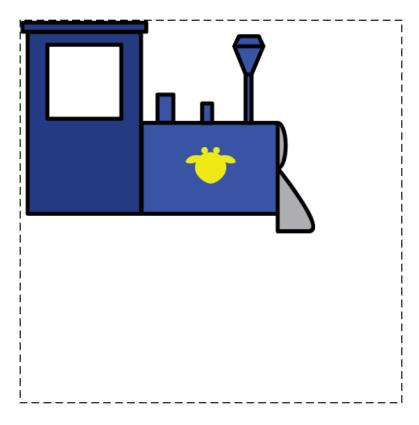
RENDERABLES



POWER-OF-TWO CONVERSION



396 x 284



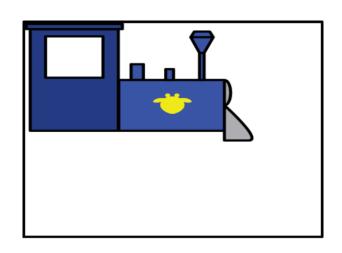
512 x 512

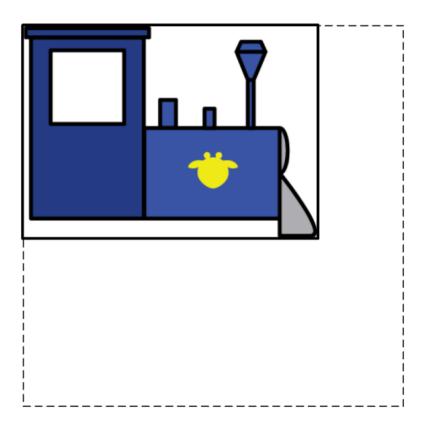
17 OF 24 | 11.01.2013

DEPARTMENT OF COMPUTER SCIENCE

AALBORG UNIVERSITY

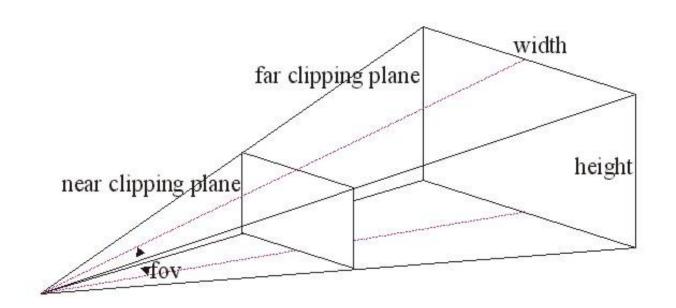
POWER-OF-TWO CONVERSION





FRUSTUM

THREE-DIMENSIONAL SPACE



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RENDERING

ANDROID OPENGL ES

android.opengl.GLSurfaceView android.opengl.GLSurfaceView.Renderer

GameData

-pixelMovement : float

+currentTrainVelocity : float

+total Distance Traveled: float

+numberOfStations : int +numberOfStops : int

+timeDifference : float

+nextStoppingPosition : float[]

+getPixelMovement(): synchronized float

+updateData(): synchronized void

+accelerateTrain(): synchronized void

+decelerateTrain() : synchronized void

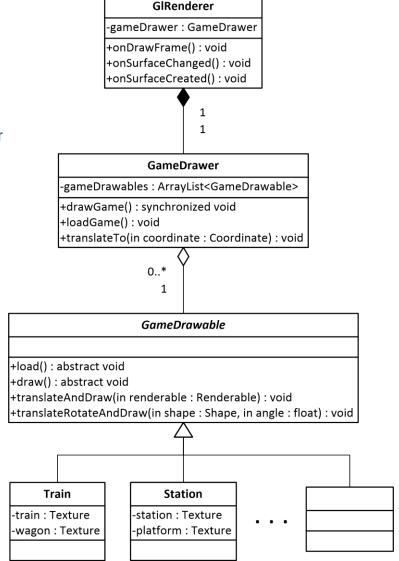
+getTotalTravelDistance(): synchronized float

+onPause(): synchronized void

+onResume(): synchronized void

-brakingDistance(): synchronized void

-performAcceleration(): synchronized void



Game Implementation

JACOB KARSTENSEN WORTMANN



DRAG AND DROP

EVENTS

GAME DRAWABLES

TRAINS AND WAGONS

WHEELS TRAIN SMOKE

STATION

RANDOM SEQUENCE

GAME BACKGROUND

HILLS TREES COWS CLOUDS

Conclusion

JACOB KARSTENSEN WORTMANN



CONCLUSION

PROBLEM STATEMENT

"IN WHAT WAYS CAN WE AID THE PEDAGOGUES IN THEIR WORK WITH CHILDREN WITH AUTISM, BY DIGITALIZING A PHYSICAL EXERCISE ONTO AN ANDROID TABLET?"

HEST?

Demonstration

SIMON REEDTZ OLESEN

