# Maher Application
## An Application For Supporting Autism Children In Learning Self-Care Skills

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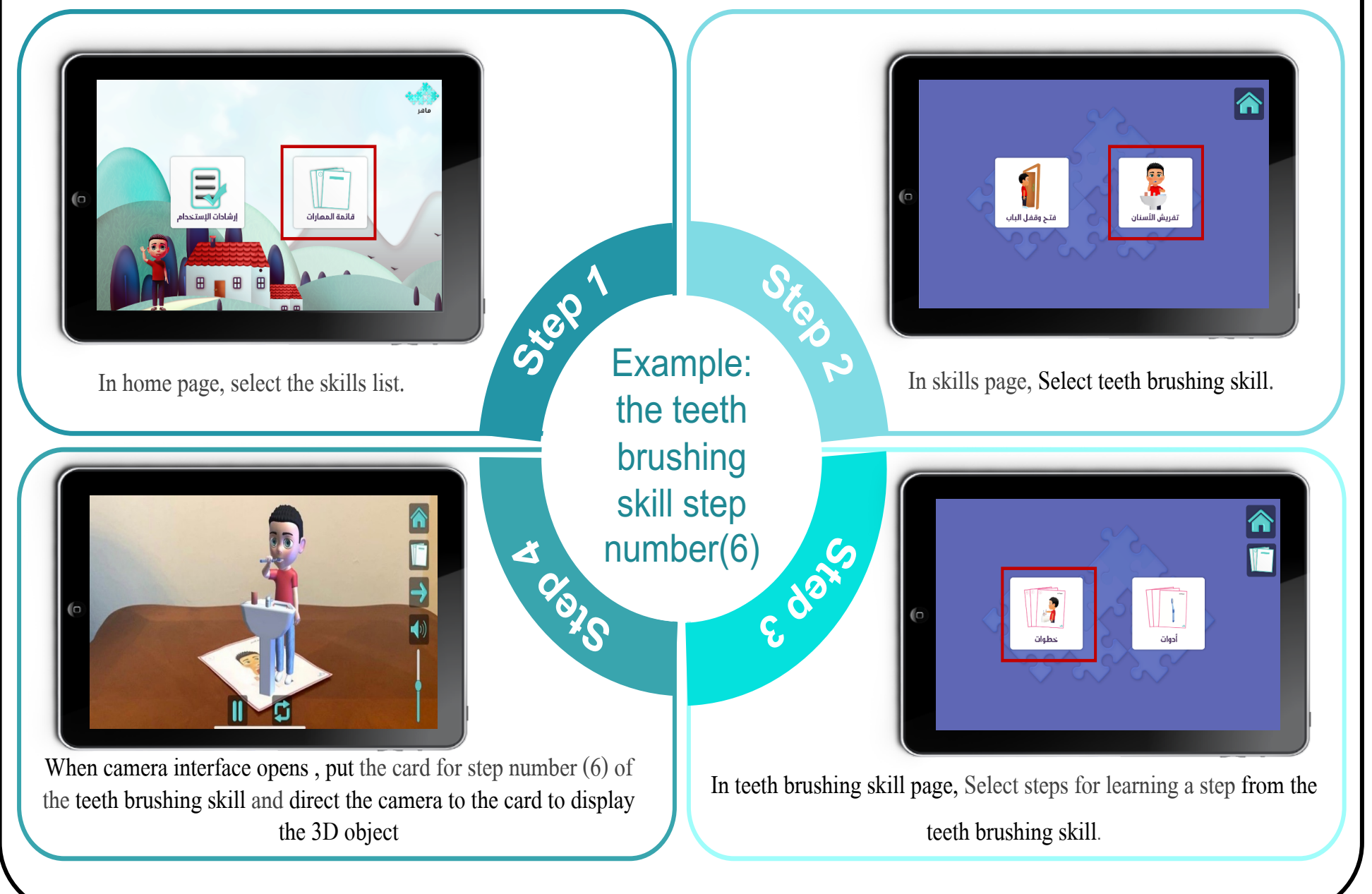Computer Science Department, Umm Al-Qura University, Makkah, KSA

## INTRODUCTION

Some of the studies demonstrated the positive effects of the technology on children with autism spectrum disorder (ASD). The use of the technology had positive impact on improving physical activities and learning skills of ASD children. One of the objectives for learning ASD children is developing their life skills progressively. First, the child should know what are the basic tools for a specific skill then, he/she can learn how to use them. Each life skill is divided into steps. Through this project, we developed an application based on augmented reality (AR) to help and support children with ASD in learning self-care skills faster.
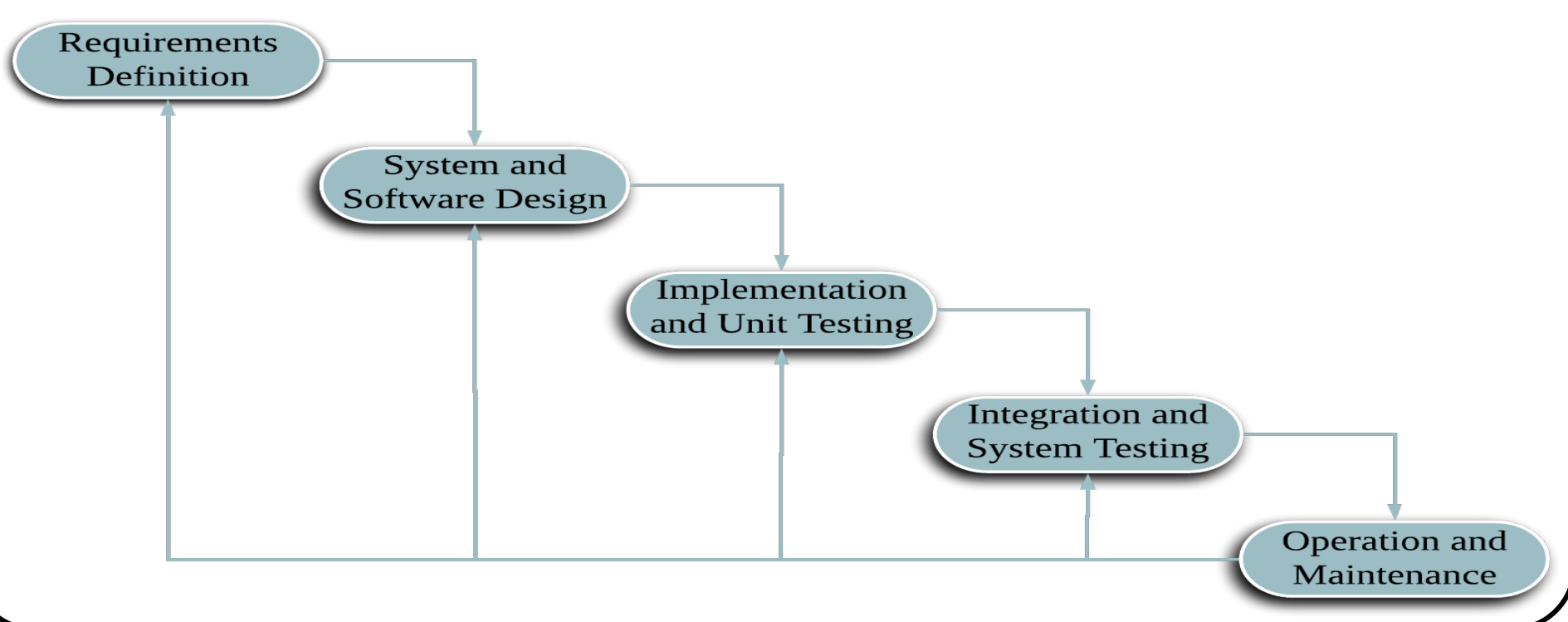
## PURPOSE

The purpose is to develop an app that will :

- Facilitate some of the difficulties faced by children with ASD by using technology.
- Use AR technology in the learning process.
- Prepare and support children with ASD in learning self-care skills faster, and to optimize traditional education method that already used at ASD centers.

## METHODOLOGY



Requirements Definition → System and Software Design → Implementation and Unit Testing → Integration and System Testing → Operation and Maintenance

## SYSTEM COMPONENTS

The system consists of the application and physical cards. The application supports two skills and each skill divided into tools and steps. The physical card used to display the 3D object when the camera directed on the card.
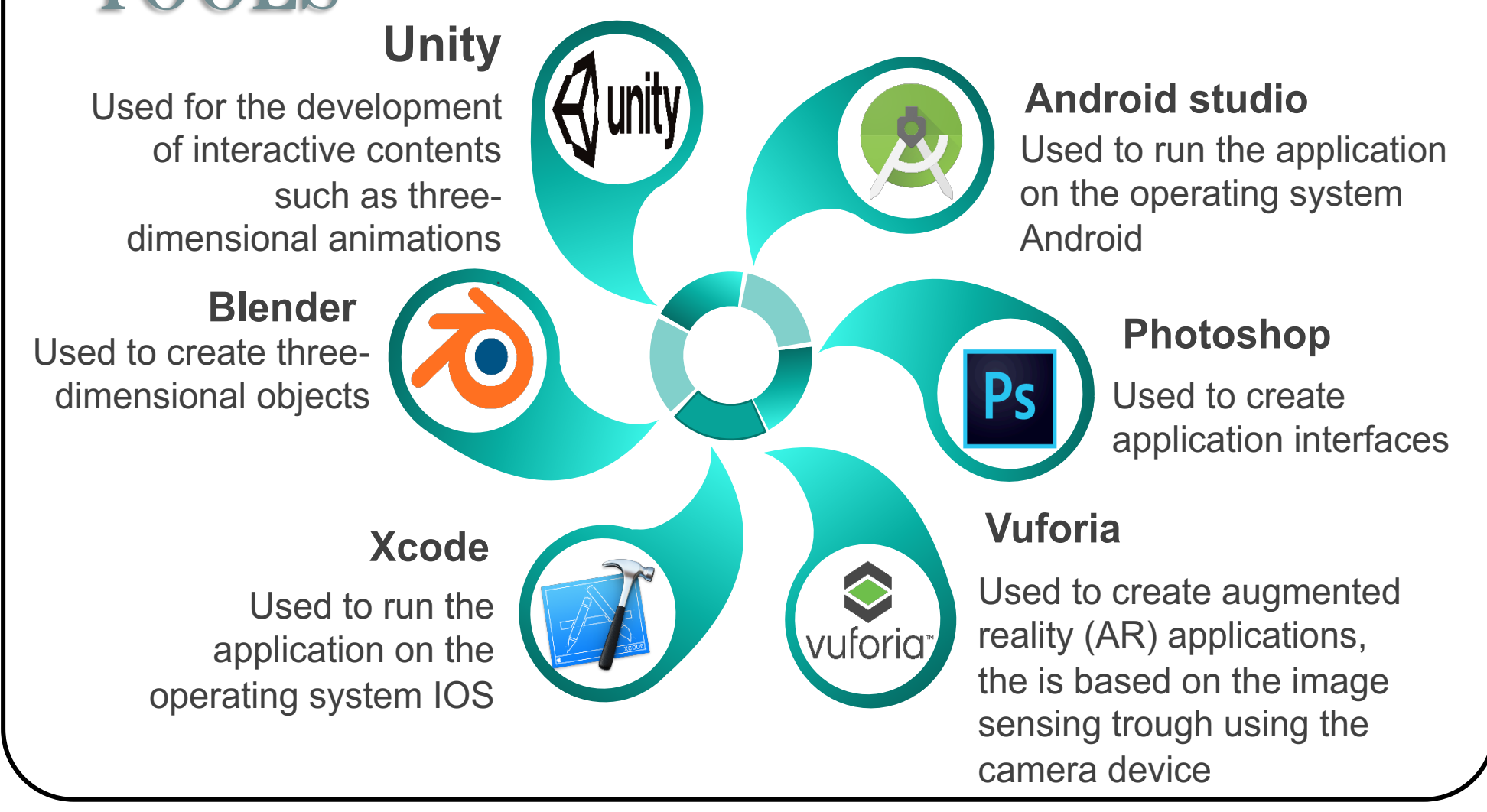


Application                Physical card

## HOW THE APPLICATION WORKS



Step 1 — In home page, select the skills list.

Step 2 — In skills page, Select teeth brushing skill.

Step 3 — In teeth brushing skill page, Select steps for learning a step from the teeth brushing skill.

Step 4 — When camera interface opens , put the card for step number (6) of the teeth brushing skill and direct the camera to the card to display the 3D object

Example: the teeth brushing skill step number(6)

## TOOLS

**Unity**
Used for the development of interactive contents such as three-dimensional animations

**Android studio**
Used to run the application on the operating system Android

**Blender**
Used to create three-dimensional objects

**Photoshop**
Used to create application interfaces

**Xcode**
Used to run the application on the operating system IOS

**Vuforia**
Used to create augmented reality (AR) applications, the is based on the image sensing trough using the camera device

## CONCLUSION & FUTURE WORK

This application facilitates the children with ASD to learn self-care skills. In future, we will:

- Add more self-care skills.
- Add types of skills (e.g. cognitive skills, social skills, language skills, religious skills, attendance and attention skills).

## REFERENCES



## CONTACT INFORMATION

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