

**CONNECTING**  
VIRTUALISATION RELATIONSHIPS

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16. OCTOBER. 2020

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## ***THE UTOPIAN FAMILY FORM***

Theoretical part

## The “Death” of the family?

### Introduction

Since the mid-1960s, the family in Germany - like in other highly developed industrial societies - has undergone pronounced processes of change. Many social scientists believe that marriage and family are going through a crisis; there is even occasional talk of the “death of the family”.

Never before has a way of life been as dominant as in the post-war period from the mid-1950s to the mid-1960s. It appears as a historically unusually short heyday for the family. So many people had been married, and there had been so many births as in the so-called Golden Age of Marriage. The modern marriage and family model - the modern small family as an independent household community of a couple with their underage biological children - had practically and normatively prevailed almost universally.

Even though the majority of the population still lives according to conventional models, considerable changes away from this model have taken place in the course of the social modernisation process. The birth rate is falling everywhere in the developed

industrial countries. Marriage is less common, and couples are getting divorced more and more. All of this is reflected in the pluralisation of forms of life and relationships. The number of those who practice or have had non-traditional lifestyles and forms of relationships such as the unmarried separated life as a couple (Living Apart Together) or living in a non-marital cohabitation is increasing. The modern small family is only one - albeit still the most common - of numerous life forms. The type of the modern small family has also undergone an internal structural change, as can be seen, for example, from the unequal participation of the sexes in household and family work and the change in the male role towards the “new” man and “active” father.

The change in the role of women is particularly important for the dynamisation of the family. The individualisation of the female context of life was initiated and promoted by the revolutionary adjustment of the educational opportunities of young women in the wake of the education-

al expansion of the 1960s and 1970s, the increase in qualified professional work and the acquisition of personal income as a prerequisite for economic independence. In the course of a few decades, the previously dominant housewife marriage was replaced by the additional wage marriage. The time of inactivity or the time-limited employment of women is now limited more and more to the family phase, in which the children do not go to school yet. Relationships are also becoming increasingly fragile; the trend is from the pattern of permanent monogamy to monogamy in instalments. The decline of the modern small family is accompanied by an increase in single-parent families and step families. In Germany, as a result of falling fertility and rising age, as in other EU countries, demographic ageing with all its negative side effects will be an inevitable process in the coming decades.

Ageing of the population affects all aspects of the society including health, social security, education, socio-cultural activities and family life. Regarding

the care of elderly people, if fertility continues decreasing then this will inevitably lead to a lack of care workers, both paid and unpaid, especially, for elderly people. The social and economic provision of care still creates gender dilemmas for societies by narrowing the range of employment opportunities for women. As caring responsibilities are in general better fulfilled by women, high demand for paid care workers will increase women's participation in the labor market in place of their role as unpaid care workers in the household. Those substances rapidly affect the relationships between several roles in the family, and definitely changed permanently the forms of families in the future.

Therefore, does modern small family still have a future in view of the social change that is taking place? Which alternative forms of living and relationships are most compatible with the processes of social change and can possibly replace the modern small family? What is the role, that digitalisation would be a part of the future scenarios? It would be discussed in my final master thesis.

## The Pluralisation of Family forms, the discuss of family models

Surviving, nurturing, and education are the most important functions of the social structure. It has been found through the study of ethology, that the family is an indispensable main form to realise those functions. In human society, the family based on marriage was considered to be the “nucleus” of society, and socialisation is seen as the most important function of the family. Even the constitution emphasises the importance of the family to society: In the DDR, the most important task of the family is to educate the next generation to become “socialist personalities” and “state-conscious citizens” - Art. 38 of the constitution. The social policy measures aimed at the fullest possible integration of women in employment process and the simultaneous raising of several children. The parents were largely released from the financial and time burdens of bringing up children.

After the 21st century, however, globalisation, digitalisation, and several social changes, people questioned the traditional family. The drop of marriage rates and

birth rates, the impact on the next generation, led to the emergence of some family forms: single-parent families, family without children and so on.

In this chapter, we will start from introducing the history of the development of the concept of family, the various family forms before the industrialisation, to the marriage based on love, and the rise of small family form, to monogamy becoming a common sense, as a part of culture. It shows that the family, as the smallest component of the social structure, is interdependent with the human social system. We will also discuss about the impacts of family, the lack of current family form, and the crisis of contemporary family form.

## “Whole house” family form and rise of monogamous family form

Numerous family history studies show that before and at the beginning of industrialisation there was an extraordinarily large variety of family lifestyles[1]. In fact all forms of life occurring today already existed in this historical phase, the individual structural elements of “new” forms of life are therefore not new. From the mother or father family (one-parent family) to the illegitimate parent-child community (consensus marriages) to complicated step-parent relationships, from the nuclear family to larger, “complex” family associations, which are rarely the case today still exist, and the diverse household types in which distantly related and unrelated people lived.

The most important and most widespread economic and social structure in Europa in the early modern period was the “whole house” social form, which was particularly typical of the rural and artisanal way of life[2]. This “whole house” fulfilled a multitude of socially necessary functions (production, consumption, socialisation, old-age and health

care). The central feature of the “whole house” was the unity of production and family life. Not only the related family members were subordinate to the “house-father”. Unrelated members of the house - the servants and maidservants on the farms, the journeymen and apprentices with the craftsmen and the servants and maids in the houses of the nobility and the upper class - were equally part of the house association. The unity of production and household meant that affective-neutral (low-relations) relationships had a clear preponderance over emotions. This applies equally to the relationship between the sexes and to the position of children. Economic factors (labour, dowry of the woman) were decisive for the choice of partner. The children who were viewed and treated as more likely to be potential workers were considered to be equals, relatively unemotional[3].

With the expansion of the capitalism mode of production in the process of industrialisation and the associated separation of work and residence, the social

form “whole house” lost enormous importance. As a result of social differentiation processes, the type of bourgeois family specialising in emotional functions began to emerge in the educated and wealthy bourgeoisie (government officials, entrepreneurs, merchants), where women and children could be released from gainful work. As a forerunner model of the modern family form, the bourgeois family has several advantages compared to the “whole house” family form: the home and workplace are spatially separated. Work takes place outside the family - a key prerequisite for the privatisation of family coexistence. Functions that were formerly performed in the family association, such as education and care for the sick and the elderly, are being outsourced. The middle-class family has a privatised sub-area that specialises in emotional intimate functions. The guiding principle of marriage, as an intimate community, emphasises the uniqueness of partner. Love becomes the central motive for marriage. And also childhood becomes an independent, recognised phase

of life. The upbringing of the child becomes the women’s “own” task[4]. With the rise of the bourgeoisie, the carrier of the ideal of romantic love developed in literary discourse. Gradually did the romantic ideal of love become effective as a relationship norm. The love marriage became the cultural model of the bourgeoisie. Due to massive increases in real wages and the expansion of the social security systems, there was a significant improvement in the living conditions of all those earning income. The parties and churches also contributed to the propagation and generalisation of this type of family form. The bourgeois modern family became the normal family form, a cultural matter of society and a basic pattern that was unquestionably lived a million times[5]. At the beginning of the 1960s, nine out of ten men and women considered the institution of marriage to be fundamentally necessary[6]. Most people saw marriage as a permanent, binding bond, and wished that divorce should be made as difficult as possible or

that marriages should generally be insoluble. With a few exceptions, all young people wanted to have children at some point. Nine out of ten considered it important that a woman is married when she has a child[7].

The strong normative binding force and acceptance of the bourgeois model of marriage and family also manifested itself on the behavioural level. The modern marriage and family form, structured according to this model, had almost universally established itself and had become the dominant family form - the normal family. This situation, however, has changed fundamentally since the mid-1960s. The upheaval of the modern family and the family crisis can be seen in the demographic change processes and the temporal change of Lifestyle, above all in the development of the birth rate, the amount of marriages, and divorces, in an increasing lack of commitment and in increasing doubts about the possibility of realising the model of a lifelong, monogamous marriage.

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## The upheaval of traditional family form

In the former “Bundesgebiet” in Germany, the quantity of new baby births almost halved between 1964 and 1985 from 1.065 million to 586,000. A low point was recorded in 2011 with 530,000 children[1]. The changes in the birth rate have been accompanied by a marked change in the family structure. These include the postponement and timing of parenthood, increasing proportions of illegitimate births, changes in family size and the parity distribution of births, as well as the influence of parenthood on the partner relationship and lifestyles of young families.

Today, fewer people regard marriage as a mandatory prerequisite for starting a family, as can be seen from the development of the non-marital rate: The birth rate of non-marital family form (proportion of new born babies, which their parents do not have legally married) increased fivefold in Germany between 1970 (7 percent) and 2017 (35 percent). Since the Golden Age of Marriage, marriages have become increasingly rare. In 1960, 689,000 couples were legally married in

Germany. In 2016, only 410,000 couples signed the bond for life. Young people are also waiting longer to get married. In 1975 the average age at marriage for single men was just under 25 years and the age at marriage for single women was 22.5 years. In 2016, single men were on average 34 and single women 31 years old at the wedding. Not only marriages are less frequent and later, they have also become more fragile. In 2016, 162,400 marriages were divorced in Germany. This means that the number of divorces has more than double since 1960. A half of the divorced couples had underage children. In total, around 132,000 underage children experienced their parents’ divorce in 2016. And after 25 years of marriage is 393 divorces per 1,000 marriages. Since marriages in this cohort will also be divorced in the following years, the proportion of marriages ended by divorce after 30 or 40 years will be even higher.

The lifestyles of citizens also have significantly changed. The statistical office in Germany understands lifestyles to be rel-

atively stable patterns of relationships among the population in the private phase, which can generally be described as forms of living alone or living together (with or without children). In particular, the household type of married couple with children is declining sharply and in 2007 only have 22 percent of all households in western Germany (In 1972: 39 percent). This type of household is even less widespread in eastern Germany, where in 1996 there were still parents with children in 29 percent of all households, compared to only 16.5 percent in 2007. Single parent households grew particularly strongly, the share in western Germany now being 39 percent (In 1972: 26 percent) and in eastern Germany 42 percent (1996: 31 percent). Although the proportion of households with unmarried partnerships with children in western Germany has multiplied from 0.1 to 1.6 percent, viewed in absolute terms it is still a minority phenomenon. In 2017, there were 924,000 unmarried partnerships with underage children in Germany. This corre-

sponds to a share of 11 percent of all families with underage children. Between 1972 and 2007 the proportion of unmarried partnerships without children in the household increased almost tenfold in western Germany. And Childlessness is also not new in Germany. In the birth cohorts between 1902 and 1905, the proportion of childless people is 26 percent[2]. Between the birth cohorts 1937/1942 and 1968/1972 the proportion of childless women in Germany increased from 11.5 percent to 22 percent. Childlessness has increased from generation to generation. In the population aged 70 and over, 11.5 percent, in the age group 60-64 years 14 percent, in the age group 50-54 years 18 percent and in the age group 40-44 years 22 percent of women remained childless. In Germany - especially in western Germany lifestyles marked by childlessness have become a widespread and socially established behaviour pattern. 59 percent of Germans see childlessness as something “completely normal”, and only 28 percent consider childless people to be



selfish[3].

More young people in Germany remain childless and do not want children. In 2012, in the representative study “Family Concepts”, a narrow majority of 20 to 39 year olds and two thirds of academics of the same age agreed with the statement that it is “normal to have no children”[4]. The transition to parenthood has many influence on the life situation of young couples. Most mother leave working life (mostly temporarily) completely. There is a traditionalisation of the division of labour at the expense of the mothers, and the quality of partnerships and the satisfaction of young parents are also noticeably reduced.

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## Deinstitutionalisation of the family form

Biological and social parenthood are also falling apart more frequently. More minors are only half or on longer physically related to the (social) parents with whom they are growing up. Gross and Honer introduced the concept of multiple parenthood for this issue[1]. It is increasingly common for children to have several (biological and social) mothers and fathers. They have different types of siblings, and over time the grandparents, uncles, and aunts can change multiple times. An exact description of the family and kinship relationships is hardly possible with the conventional kinship terminology. The phenomenon of multiple parenthood includes step families, in which in 90 percent of cases a social father (or “living father”) replaces the biological father in the household. In the case of adoptive parents, both biological parents are replaced by social parents.

And more lifestyles are related to the fact, that in recent decades the professional career has become more important as a competing value for the family in the

life plans of young women and the role of the man as the main breadwinner has faltered. If both spouses strive for a professional career, the marriages can be seen as “Doppelkarriere-Ehen”. The experts agree that this form of marriage has spread and will continue to expand, not least because of the higher qualifications of young generation of women. In the meantime it has become more difficult to find a job, that appropriate for two highly qualified (spouses) partners in one and the same place, mainly due to the tension in the labour market. The commuter marriage is seen as a solution to this structural tension in modern industrial societies, in which both partners set up separate, spatially distant households in pursuit of their professional career ambitions, so that living together is only possible on weekends or at longer intervals[2]. The commuter marriage differs particularly and sharply from the conventional type of normal family, because the traditional definition of marriage and family includes living and working together in one household.

An egalitarian concept of marriage is understood to be a marriage that emphasises the equality and the personal development opportunities of both gender. More recent studies allow the conclusion that even when women work full-time outside the home, only a few couples develop strictly egalitarian relationships. The househusbands in families are also rather rare, that deviate particularly radically from the model of the bourgeois family due to the role reversal. Homosexual partnerships are also increasing. In the 2016 micro census, 95,000 homosexual partnerships were identified. About one in ten had children.

A family form that has already become more important in purely quantitative terms in Germany has remained relatively unnoticed: the transcultural family. The reality of life in these families lies between different cultures and countries, experiences, and traditions. This includes two basic types: binational couples and their families, in which one partner is German and the other partner has a foreign nationality; and migrant families, where both

partners have a foreign nationality. Every ninth marriage (11.5 percent) in Germany in 2015 was binational. Almost two generations earlier, in 1960, only one in 27 newly married couples was binational (3.7 percent). The children born in Germany in 2007, 14 percent came from a German-foreign relationship, and in 10 percent both the father and the mother were foreign nationals. Binational couples move in a same place, that hardly restructured, are confronted with the task of creating an intercultural living environment or binational family culture. "A competition of traditions, which in daily life repeatedly necessitates processes of selection and negotiation. Every individuals in the couples have to search, experiment and dare to start new things. They are both practitioners and pioneers in the process of social individualisation"[3]. The diversity of migrant families results from the diversity of their national, ethnic, and cultural origins. "Individuality" is less importance here than in German society[4]. The family members see themselves first and fore-

most as member of the respective family group. The original family exercises strong social control over the structure of marriage and the family. There are particularly large differences with regard to the gender specific division of labour and the different normative expectations of sons and daughters, which are also expressed in different educational styles.

The frequent change between different household types means that the individual household type only represents a specific time phase within the overall biography. There is greater reversibility of the decisions. In addition to the ideal-typical family cycle, characterised by marriage, the birth of babies, the growing up of the children, the departure of the juveniles and widowhood, divergent life phases occur more frequently. After moving out of their parents' house, many young people start live alone or in a cohabiting partnership. If at all, marriages often only take place when a child is planned or born. Marriages are more often broken up through divorce, and a significant proportion of the

divorced are remarried, or they reside alone or in a post-marital partnership.

The Bielefeld sociologist Hartmann Tyrell mentioned a process of deinstitutionalisation, the decrease in the normative binding force of the bourgeois family model as a result of the change in the model of marital behaviour[5]. Deinstitutionalisation can be observed and described in several ways. The cultural legitimacy of the normal family since the radical criticism of the family by the anti-authoritarian student movement at the end of the 1960s has doomed unmistakably. The legitimacy crisis primarily affects the institution of marriage. In opinion polls in the early 1960s, nine out of ten women and men still regarded marriage as an indispensable institution[6]. According to Dorbritz, now 86 percent think it is okay to live together even if they do not intend to marry, and one in four even considers marriage to be an outdated institution. 30 years ago, two thirds of western German divorces still described them as morally reprehensible. Today, 82 percent of

those surveyed think it is “Okay for a couple in an unhappy marriage to get divorced, even if they have children”[7].

The type of modern western normal family form has been decreasing in numbers and proportionally since 1965 and is supplemented by a large amount of other family forms and especially non-family forms of life. At the same time, there has been a deinstitutionalisation of the bourgeois marriage and family pattern, whereby the tendency of deinstitutionalisation is both a consequence of the changes in lifestyles that have already taken place and in turn may have triggered and accelerated corresponding processes of change. Since non-family type or anyone specific family type did not dominate as clearly today as it was 50 years ago, now people could rightly acknowledged and accepted the idea of pluralisation of lifestyles. It is the different ways of life and households without children that have increased over the last few decades because life has been lengthened and the family phase has shortened to around a quarter of the entire lifetime due

to the falling number of children per family.

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## Summary of Chapter 2

(2007). *Kinderlosigkeit in deutschland — ein europäischer sonderweg? Daten, trends und gründe*. In D. Konietzka & M. Kreyenfeld (Eds.), *Ein Leben ohne Kinder* (pp. 45–81). VS Verlag für Sozialwissenschaften. [https://doi.org/10.1007/978-3-531-90323-1\\_2](https://doi.org/10.1007/978-3-531-90323-1_2)

Marriage has undergone two fundamental changes in the course of the 20th century. The first change in meaning denotes the transition from marriage as an institution to partnership marriage in the middle of the 20th century. During this phase, the middle-class family emerged as the dominant family type with the man as the sole breadwinner and the woman as the housewife and mother. Marriage remained the only socially acceptable form of having a sexual relationship and raising children. Feelings (romantic love and the emotional satisfaction of the spouse) played an increasingly important role. In the 1960s and 1970s, the second change in the meaning of marriage took place. Marriage based on partnership lost weight as a cultural ideal in favour of individualised marriage or partnership. The focus is now on the emphasis on personal development, openness and communication. Men and women today have different ideas about what makes a successful relationship. The trend is moving from a collectivist to

an individualistic relationship concept. The weighing of individual advantage and opportunity structures and the pursuit of one's own interests and desires are gaining more priority over the continuation of the relationship and the orientation towards traditional opinion of family.

The prosperity in western societies is seen as an important cause for the decline in importance of the institution of family, which has led to the fact that numerous once binding restrictions have been removed, so that one can and must likely choose between competing options. The advantages associated with family have diminished, and living alone and unmarried together or separately as a couple have become culturally more acceptable as a result of the development of prosperity, the expansion of education and the liberalisation of sexual morality. In particular, a high educational qualification, but also a high professional position and a higher income are favourable prerequisites for the development of individualistic values[1]. So, the tendencies of shrinking traditional family form and a

growing non-family sector, reflect the traditional family increasingly being displaced by non-conventional family forms? Do marriage and family still have a future in Germany? Let us compare the main features of family form between traditional family and non-conventional family form. According to the origin of the primitive family form of various species as shown in figure 2: the basic features of family form in nature, we learned that the social functions of the family include collectively resisting various dangers that threaten individual survival (surviving), better breeding for offsprings (breeding), and education for the next generation, make it better to face external dangers (nurturing).

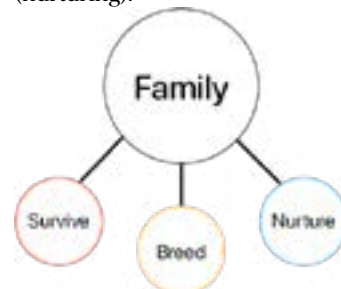


Figure 2: The basic features of family form in nature

In human society, the “whole house” family model has the same functions as the original family functions as shown in figure 3: 1. Collectively engage in production and consumption to provide production efficiency and social competitiveness. 2. The polygamy institution guarantees maximum reproductive capacity. 3. Education and forced labour for the younger generation.

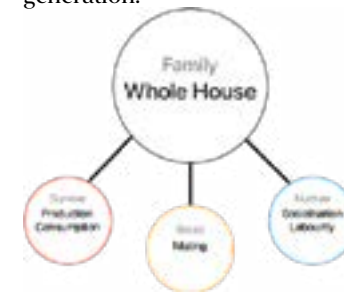


Figure 3: The “Whole house” family form

With the expansion of the capitalism mode of production and the associated separation of related work and residence in the process of industrialisation, as a result of the process of social

differentiation, however, the type of bourgeois family specialising in emotional functions has gradually emerged. The main social function of this middle-class family was translated fertility and social education and emotional comfort for the next generation.

Until now, with the continuous prosperity in human society and the improvement of production efficiency, the private emotional function of family form has already eroded, it lead to the decline of traditional normal family and the emergence of several non-family form. The breeding function of the family has partially replaced by other ways, but most likely neglected, resulting in a continuous decline in the birth rates of the population, and even the function of social education for the juveniles has been unsustainable as shown in figure 4.

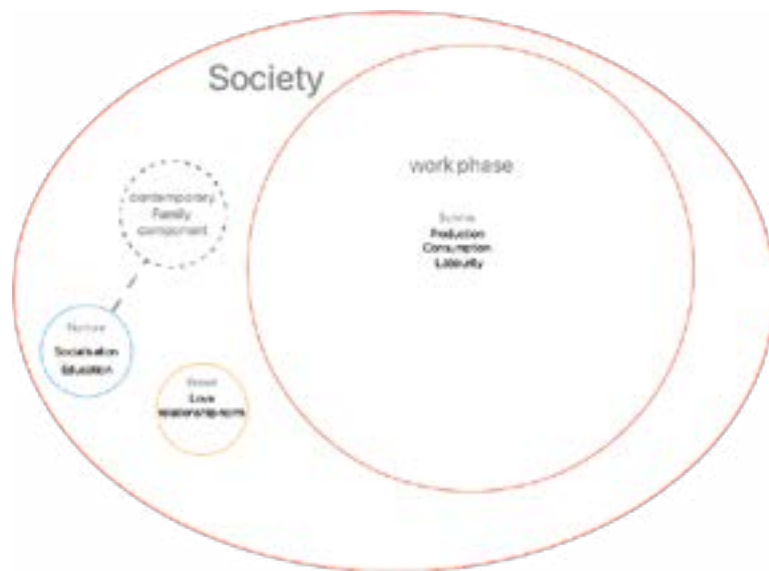


Figure 4: Contemporary family form

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## **THE CONNECTING**

Practical part

The start point of my thesis topic was inspired by my last semester project AAL (Assisted Ambient Living). In that project I was focused on ageing populations, the overpressurised financial situation and the lack of care services, by using technical intervention to mitigate the problems during care and increasing the quality of care services. It overcomes the painful problem on the care system, only the deeper reasons of the lack of care like virgin land were never set foot on. Which is the overlooking the ageing group in our sociality, the barriers between ageing and newborns. Those problems become more seriously and acuity lately.

Therefore, in my practical thesis I would like continuing working on the ageing problem. The focus points are now not just intervening the care services for old people but also for us and next generations **reshaping the family forms in sociality**. Looking for the novel opportunity that digitalisation changed our family forms and the binding between individuals.



**SCIENCE**

The problem in global



# 孤独死

**K**odokushi or lonely death refers to a Japanese phenomenon of people dying alone and remaining undiscovered for a long period of time. The phenomenon was first described in the 1980s. Kodokushi has become an increasing problem in Japan, attributed to economic troubles and Japan's increasingly elderly population.

The first instance that became national news in Japan was in 2000 when the corpse of a 69-year-old man was discovered three years after his death; his monthly rent and utilities had been withdrawn automatically from his bank account and only after his savings were depleted was his skeleton discovered at his home. The body had been consumed by maggots and beetles.

## Population ageing and shifts of family forms

The type of modern western normal family form has been decreasing in numbers and proportionally since 1965 and is supplemented by a large amount of other family forms and especially non-family forms of life. At the same time, there has been a deinstitutionalisation of the bourgeois marriage and family pattern, whereby the tendency of deinstitutionalisation is both a consequence of the changes in lifestyles that have already taken place and in turn may have triggered and accelerated corresponding processes of change. Since non-family type or anyone specific family type did not dominate as clearly today as it was 50 years ago, now people could rightly acknowledge and accepted the idea of pluralisation of lifestyles. It is the different ways of life and households without children that have increased over the last few decades because life has been lengthened and the family phase has shortened to around a quarter of the entire lifetime due to the falling number of children per family.





Because of the collapse of modern family form more children and adolescents no longer grow up during their entire childhood and adolescence with both birth parents. With the modernisation processes of society, the conditions for growing up children have changed dramatically over the past decades. Although most children today have a wide range of freedom and space. These freedoms, however, go hand in hand with new demands, because in an increasingly complex world, children have to learn at an early stage to develop an independent lifestyle.

The traditional view of one-parent families that dominated until the 1960s is based on the dysfunctionality of this type of family. Growing up in an incomplete family is said to lead to impairment of gender role identification, increased self-centredness, a low level of moral judgment and a reduced self-esteem of the children and adolescents. In the area of deviant behaviour, an increasing in psychological disorders and physical illnesses as well as higher rates of aggressiveness, delinquency, alcoholism, suicide and illegal drug using are been expected. Today this view is heavily criticised.

In the longitudinal project “family development after separation of parents”, no systematic differences were found between separated children and children from “complete” families with regard to depression, aggressiveness, rejection by peers and school skills. But the differences between them are objectively existed. It’s often unclear to what extent third factors are found responsible for the differences. Growing up in a single-parent family, for example, is very often associated with a drastic restriction of financial resources, so that the higher proportion of deviant behaviour is possibly also or even primarily a result of economic deprivation[1].

[1] Walper, S., Thönnissen, C., & Alt, P. (2015). Effects of family structure and the experience of parental separation: A study on adolescents’ well-being. *Comparative Population Studies*, 40(3). <https://www.comparativepopulationstudies.de/index.php/CPoS/article/view/196> p. 335-364

The important prerequisites for a mutual intensive exchange between the family generations are, **spatial distance**, **high contact frequency** and **high quality of kinships** as well as obligation to support family members. And in my opinion, the obligation that family members support each other, is the most important feature for reliable solution of children care, as well as elderly health care in the contemporary and in the future society. The care of grandchildren is a particularly typical form of intergenerational support, especially for the parents, that don't have extra strength for children caring. The advantage is that grandparents usually look after their grandchildren without any financial compensation, that they are more flexible in terms of time than day-care centres, that they usually provide childcare with great emotional devotion.

## The three key features for shaping family relationship



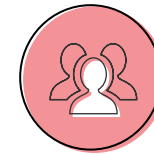
### **Spatial distance**

The actually living distance between family members



### **Frequency of contact**

Remainable contact between family members



### **High quality of kinships**

Quality of contact between family members



The situation of elderly care is more severe. The compatibility of care and work in Germany is even worse than the compatibility of family and work. People who, due to a physical, mental or emotional illness or disability, for the usual and regularly recurring activities in the course of their daily life on a permanent basis, probably for at least six months, need help to a considerable or greater extent, are described as “dependent”. Since the introduction of care statistics in 1999, the amount of dependents has increased continuously. In December 2016, 3.3 million people in Germany were dependents. According to model calculations by the statistical office Germany, they will rise to 3.5 million in Germany by 2030. The decisive driving force behind this development is the ageing of the baby boomers born in the 1950s and 1960s. In 2017, 2.5 million dependents (75 percent) were cared for at home, 818,500 (25 percent) received full inpatient care in nursing homes. And those dependents who were cared for at home, 1.40 million were cared for by relatives alone. Nursing care means an immense temporal, physical, financial, social, and psychological burden. Those providing help and those dependents are often so entangled with one another that strong conflicts and even psychological and physical violence can break out. Due to the decline of traditional family form, and the pursuit of individual development, as result of childlessness, amount of elderly dependents, who don't have relatives, have extraordinary lack of caring. Because of ageing population and continuously increased demands of nursing care, the pressure on the social insurance system will continue to increase. If there is no alternative family model, in foreseeable future, a series of social problems and contradictions will continue to intensify. This is also the most serious consequence of the decline of the traditional family institution.

## ***VIRTUALISATION OF THE KINDSHIPS***

The new possibility of kinships

Since the origins of Internet, during the development of digital technologies over 40 years, the lifestyles has enormously changed and continuously changing. Children and adolescents are now growing up in the age of the internet and smartphone/wearable devices. No other communication and information medium is used so frequently and in so many different situations. As can be seen from the 2016 JIM study, a long-term study on how adolescents use social media, computers, smartphones and internet access are available in almost all households with between the ages of 12 and 19. 95 percent of young people have their own smartphone, 74 percent a laptop or PC and 30 percent a tablet. 92 percent can use the internet from their own room. In situation of children, an average of 32 percent already own a smartphone between 8 and 13 years old children, and the proportion increases significantly with age to 61 percent between 12 and 13. In General, the Internet has become an integral part of daily life for children and adolescents.



The cellphone and smartphone use fulfils numerous functions for children. Interpersonal communication predominates, which means that the devices are most often used for phone calls with parents and for exchanges with friends. Adolescents are mainly engaged in communicative activities online (41 percent), followed by entertainment (29 percent) and information activities (10 percent). Girls spend more time communicating than boys who spend more time playing games.

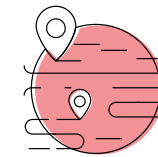
The decline of legitimate marriage institution is inevitable, in view of the ongoing social shift, does the modern family form still have a future? Which alternative forms of family and relationships are most compatible with the processes of social change and can possibly replace the modern small family? To find out the form that replace the dominant family form, we have to find the replacement of the social functions, that with traditional family undertaken.

Regarding the social functions of the family, it is worth noting that the pluralisation of lifeforms does not mean a loss of community and increasing social isolation. Because with the expansion in small and non-family households, new forms of community have emerged that promise more independence and freedom in the choice of lifestyle. The potential of contact and support, and their involvement in social network must be taken into consideration, before the breaking and loss of community to be discussed. Diewald shows that the tendency of dissolution of family households is at least partially absorbed by relatives and non-relatives[1]. In the middle of the 1980s and 1990s, cross-household contacts and support relationships between friends increased. This is most noticeable among population groups that are traditionally more kinship oriented (such as women and workers). The assistance does not only refer to occasional practical assistance. Mutual support in particular with private problems (with the exception of looking after the sick and disabled) has been intensified. If someone was affected by unemployment and professional failures, it is often friendship that offer emotional support. Those people whose lives in the traditional family cycle, however, have on average a particularly higher level of social support. The older people who living alone and the childless (which will continue to grow in the future) are subject to the greatest danger of isolation.

The key prerequisite for replacing the traditional family model, therefore, is whether children and adolescents can grow up psychological and physical healthily without a family environment or in a extraordinary family environment (such as single-parent family, stepfamily), and can the new form of social structure provide reliable social support for the elderly who living alone or without children.

[1] Diewald, M. (1991). *Soziale Beziehungen, verlust oder liberalisierung? Soziale unterstützung in informellen netzwerken*. Edition Sigma.

## The three key questions for my master thesis ?



1. What is the future family form?



2. How can digitalisation play an important role in family?



3. How can people be more closely connected?

***THE SOCIAL FAMILY FORM***

new type of family kinship based on the  
virtual communication



**W**ith the increasing penetration of lifestyle through the expansion and increased use of electronic media, especially the demand for digital social communication soared during the corona pandemic, we see the enormous tendency of virtualisation of daily life - mediatisation, and a “functionalisation of reality”. Due to the expansion and differentiation of computer-mediated virtual worlds, perception and action are detached from spatial and physical references. At the same time, daily family life is shaped by technologies (e.g. mobile phones) that establish new types of relationships. On the contrary, a new type of family kinship can also be established through virtual communication on the Internet. I call it the “**social family form**”.

The idea of the virtualisation of social family form is by using the Internet, smart phones or portable electronic devices as the medium, ignoring the boundaries of regions and races, or physical distance, allowing strangers who lack family relationships to establish contact, and through the effective communication to build the family like feelings that similar to real kinships. The social functions of the traditional family form, which are gradually missing, is compensated by technical means.

**First of all, due to the features of Internet, the disadvantage of spatial distance has been eliminated at beginning. With the advanced technology, even between different continents, real-time communication can maintained without delay.**

**Secondly, the deep entanglement between traditional family members can often lead the outbreak of conflicts, even psychological or physical violence, but the communication that been builded by digital forms, can effectively avoided those conflicts.**

**Finally, the advantage of data lies in the reliable analysis and prediction of crowd's behaviour, decision making and persona analysis of target users, to provide more accurate services. The biggest advantage of family virtualisation is the collection of family relationships data. A scientific data model, therefore, can be established for the family kinships, whether it is to provide customised suggestions for individuals, or to study and analyse the shifts of certain groups of people.**

## COMPETITOR ANALYSIS



## Digital platform for connection

**Animal Crossing** is a social simulation video game series developed and published by Nintendo and created by Katsuya Eguchi and Hisashi Nogami. In Animal Crossing, the player character is a human who lives in a village inhabited by various anthropomorphic animals, carrying out various activities such as fishing, bug catching, and fossil hunting. The series is notable for its open-ended gameplay and extensive use of the video game console's internal clock and calendar to simulate real passage of time.



## Tools for communication

Series of applications such as “**Marco Polo**”, **Whatsapp**, and **Wechat** are comforted and encouraged to use as communication tools for family members, it is the prime solution for most of people, who has the need of communication towards their family in distance. But those applications are too general for family usage, it did not improve the connection between people, and it is far away to build connection between strangers.



## Virtual character

**Tamagotchi** is a keychain-sized virtual pet simulation game. The characters are colorful creatures with simple designs based on animals, objects, or people. Upon activating the toy, an egg appears on the screen. After setting the clock on the device, the egg will wiggle for several minutes, and then hatch into a small pet. In later versions, inputting the player's name and birthday is also required when setting the clock, and at birth, the player can name the pet and learn of its family group and/or gender. The player can care for the pet as much or as little as they choose, and the outcome depends on the player's actions. Pets have a Hunger meter, Happy meter, Bracelet meter, and Discipline meter to determine how healthy and well behaved the pet is. There is also an age and weight check function for the current age and weight of the pet.

## THE APPROACH FOR SOCIAL FAMILY FORM



My final approach of the social family form is the **“Connecting”**. “Connecting” is a digital platform that provides connecting between families and limited strangers. Inspired by the virtual pets product “Tamagotchi”, I proposed that participants in the platform should be represented by an auto-generated character. The character was animated automatically based on the different states from the actual state of the user. Compared to the traditional communicating application, “Connecting” tries to avoid the “requested operation” to trigger the communication - so it is called “Active Communication”, instead of that, direct communication like haptic signals taking place as the main communication is called “Passive Communication”.

**DESIGN**

The general discussion of design

In this chapter, I would start to discuss the general design decisions and the way how to make that decision. In summary of last chapter, three basic functions should be take care of.

### **1. Characterisation**

The idea of approach is to generate a customised character, that represent the actually family member.

### **2. Passive communication**

One of the biggest differences between tele-communication and physical communication, is that face to face communication did not require the additional operations for sending and receiving signals. the most important consideration is how to build a passive communication solution like real living in a tele-communication.

### **3. Status recording and representation**

One of the advantages for virtualisation of family form is, that user's status data can be colleted and evacuated for providing the better experiences of communication. It is valuable for improving the communication and avoiding the meaningless conflict that often appear in real context.

## ***PERSONA AND SCENARIOS***

Reviewing the complete process of product

## Persona 1

Name: Kathrin Schwirkschlies  
Age: 69  
Work: Pensioner  
Marital status: widowed  
Kids: 0  
Income per month: 800  
Living situation: Nursing house  
City: Kiel



Kathrin is an old woman without her own children, her husband died for 10 years, several years after, kathrin was moved to a nursing home. Without works, she has no other contact with the outside world. She recently felt more isolated and lonely in the home, even through there are many friends in the nursing home.

## Persona 2

Name: Alan Fietz  
Age: 6  
Work: Student  
City: Kiel



Alan is a 6 years old boy who spends lot of time with his friends because his parents are too busy to be with him.



## Scenario I: Treffen

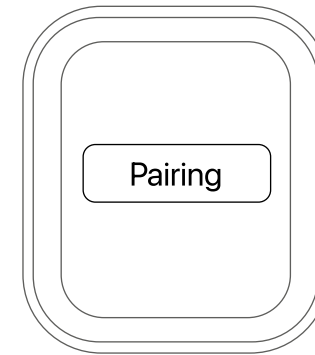


Alan's school has organised a special event, where children visit the near nursing home to play and communicate with the elderly. This is how Katherin meets her new family member.

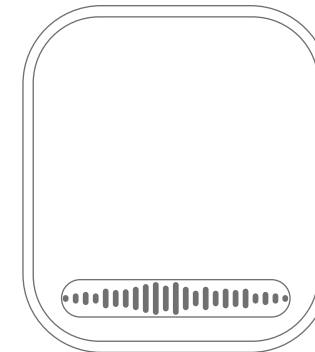
## Scenario II: Pairing



After several conversations between two of them, Karthrin and Alan decide to use the Connecting to establish a family connection. they put their wearable device together, and press the “pairing” button at the same time, the devices paired automatically in seconds.



1. **“Pairing Screen”**, The first screen, that user will see, when currently device don't have any connection.

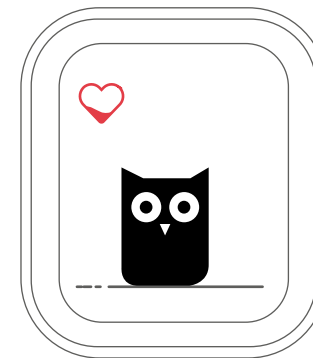


2. **“Pairing Screen for lightweight device”**, for the people, who don't familiar with screen based product, can optional use the other version of product, which it has no screen and limited functions.

### Scenario III: Status view

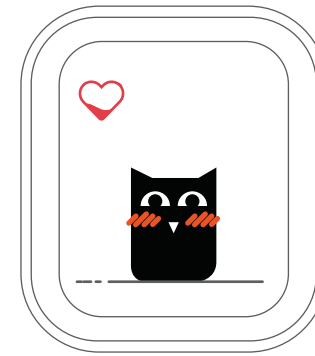
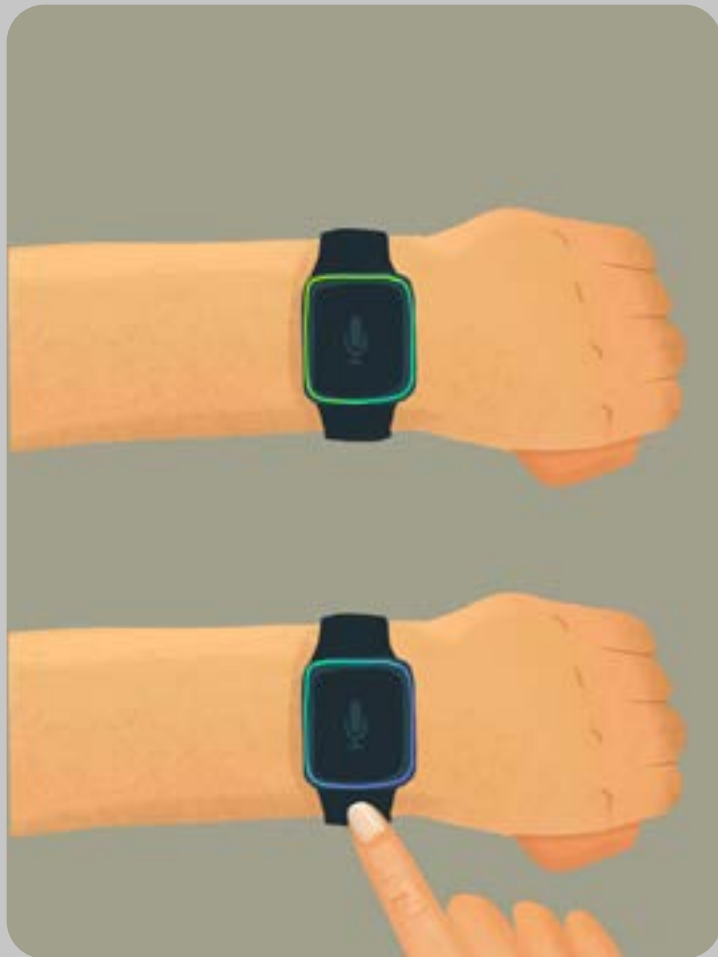


Kathrin weared the device like the normal watch, without additional operation, the device will automatically collect nessesary infomation, and optionally send to Alan's device.

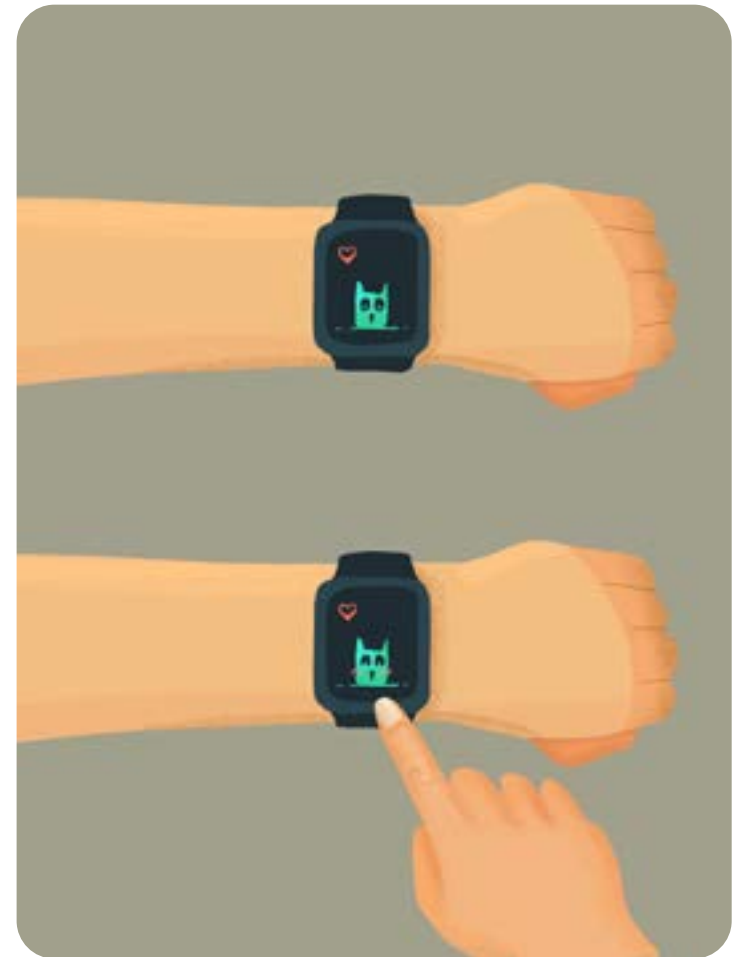


3. **“Main Screen”**, from opposite side, Alan’s screen will directly show the character, that represent Kathrin, when the action of Kathrin changed, animate the character in a proper way.

### Scenario IV: Real time touch

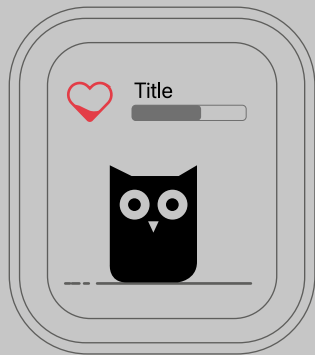


4. **“Touch Screen”**, from both side, when Alan and Kathrin touched their bracelet, at first, the character will show it has been touched, at second, the target’s bracelet will generate the similar stimuli to the target’s arm, like someone was holding the hand wrist.



## Scenario V: Encourage system

In that event, not just Alan and Kathrin has established virtual connection. Alan's friends are most have their own connection in the nursing home. To encourage Alan and his friends frequently communication with their connections, an encourage system was been considered. When Alan has hang out with his friend, they can check their screen to compete others.



5. **“Statistic Screen”**, the heart shape was indicated current level of communication, different level has different title. Gamification can be easily turn communication into a amusing playing, like “Tamagotchi”.



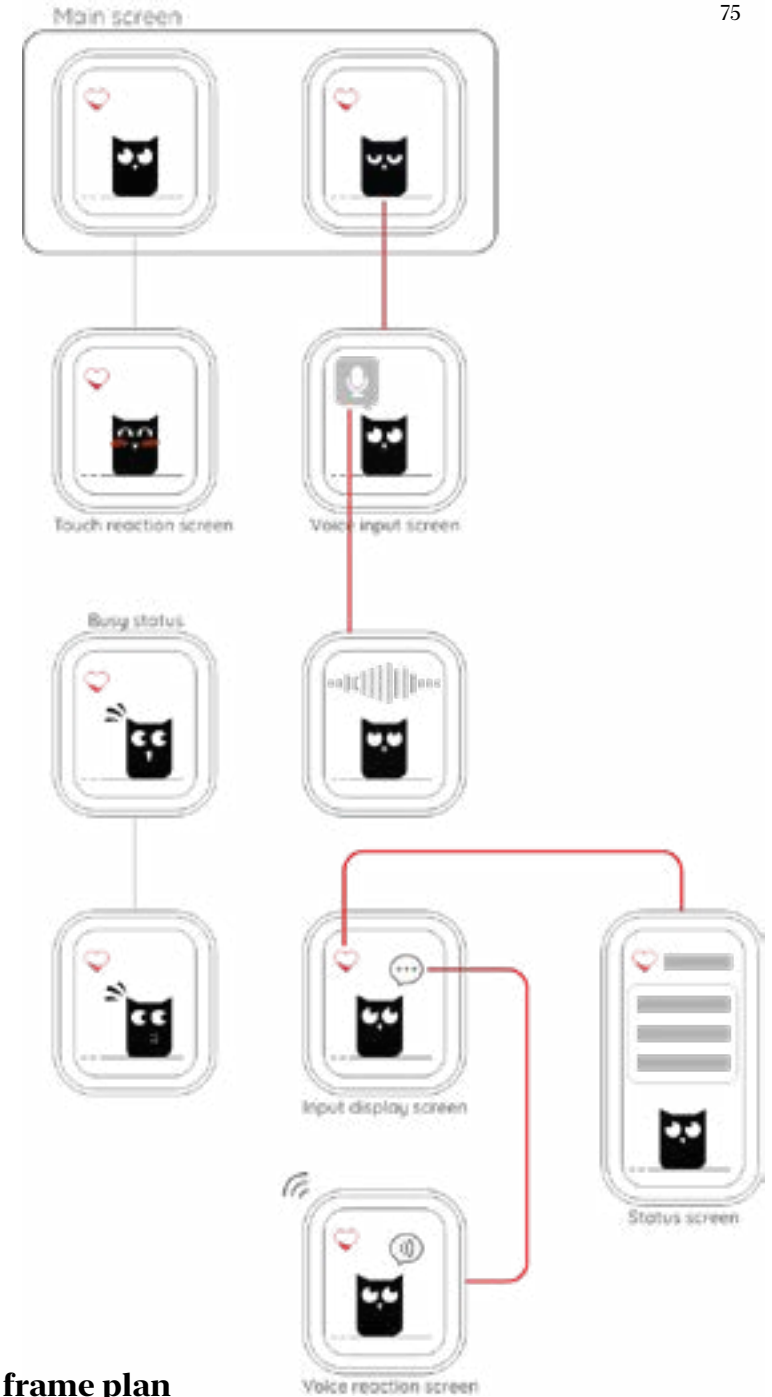
### Scenario VI: Voice communication



5. "Voice out Screen", for more valuable communication, the application should be able to send and receive the voice mails.



6. "Voice in Screen".



Basic wire frame plan

## Persona 3

Name:	Leandro Manz
Age:	57
Work:	Pensioner
Marital status:	mariaged
Kids:	3
Income per month:	2000
Living situation:	ressort
City:	sourth konstantinburg



Leandro was a marketing manager in London, who is now retiring and living with his wife in his home country Germany. But their son and grandson Lorenz still live in London and can only visit him for Christmas, although leandro and his wife miss their family very much.

## Persona 4

Name:	Lorenz Manz
Age:	5
Work:	Student
City:	London



Lorenz is 5 years old. And now preparing for his first school semester in his life. He doesn't have much impression of his grandfather, because his grandfather lives far away from his family.

## Scenario I: Pairing

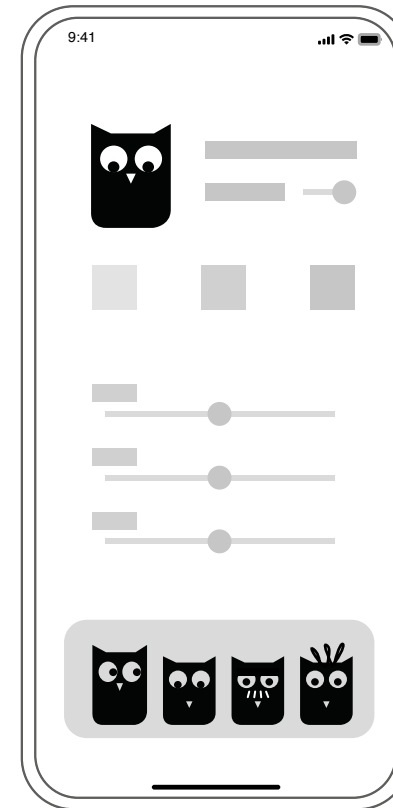


For the people like Leandro, who has experiences of dealing with smartphone, and willing get more information from his grandson, a smartphone version of product is necessary.

### 1. "Pairing screen".



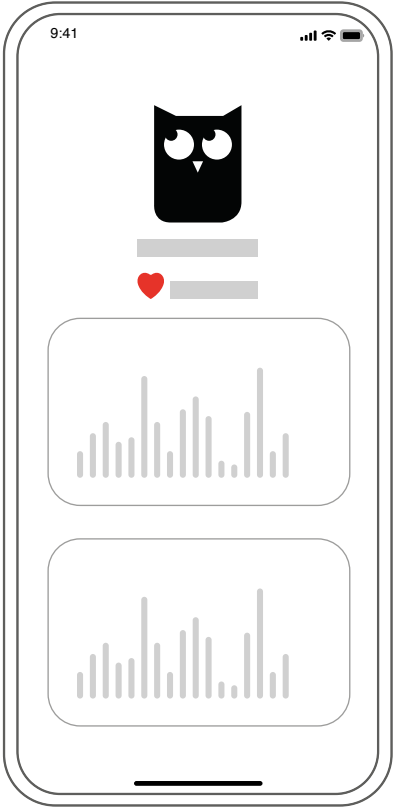
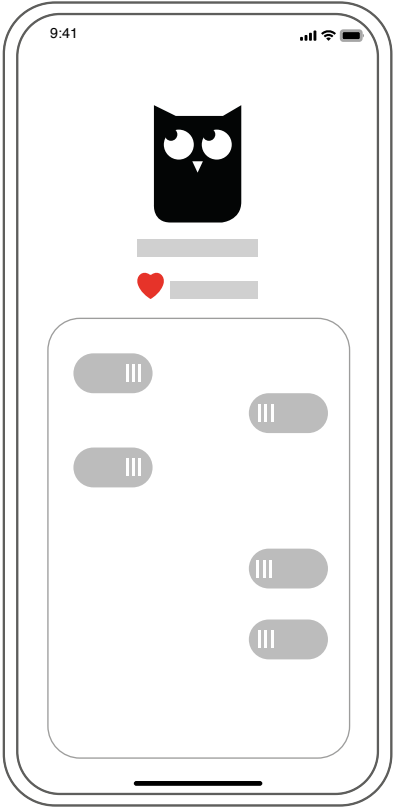
## Scenario II: Customise character



In the version of smartphone, the character can be customised based on users request. Different colours, different body size, and different configurable features of character are the solution to build the unique character with unique movement.

### 2. "Configuration Screen".

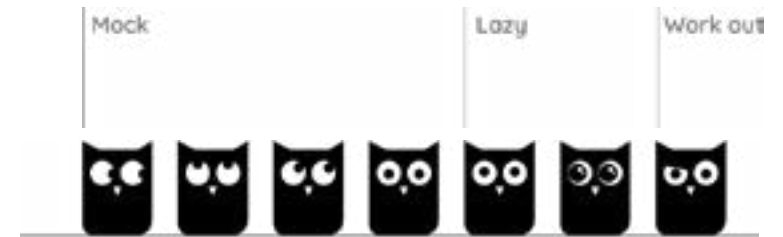
### Scenario III: Status view from mobile phone



***CHARACTERISATION***

The design of character

As shown in last section, characters are present in the most of screens. Character design, therefore, is the main design object and affect the rest parts of the product. The design of the character, is not only demanding of optical illustration, but also how to easily interact with other parts of product and humans behaviours.

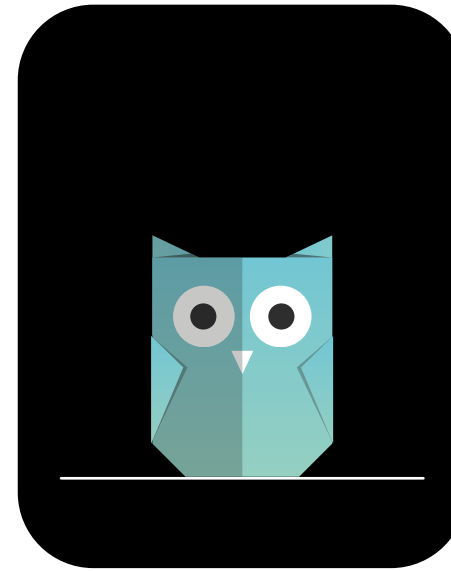


### **why owl?**

**The families of owls are considered the most traditional family form compared to the human society in the nature. Most of them are only have one male, female, and several kids in their life. In the european mythos, owl represented wise and old people. And in the perspective of illustration, the image of owl can be relatively simple and intuitive for design and animation.**



the word “origami” is used as an inclusive term for all folding practices, regardless of their culture of origin. The goal is to transform a flat square sheet of paper into a finished sculpture through folding and sculpting techniques. The small number of basic origami folds can be combined in a variety of ways to make intricate designs. The best-known origami model is the Japanese paper crane. In general, these designs begin with a square sheet of paper whose sides may be of different colors, prints, or patterns. I use the origami stylised design for more elegant illustration of feelings, and more flexibility and certainty of characters animation in later section.



*\* The black background was wrapped character for accurate optical feeling, that should be display on black screen in the actual product.*

*\* The actual colours may differentiated from the print version.*

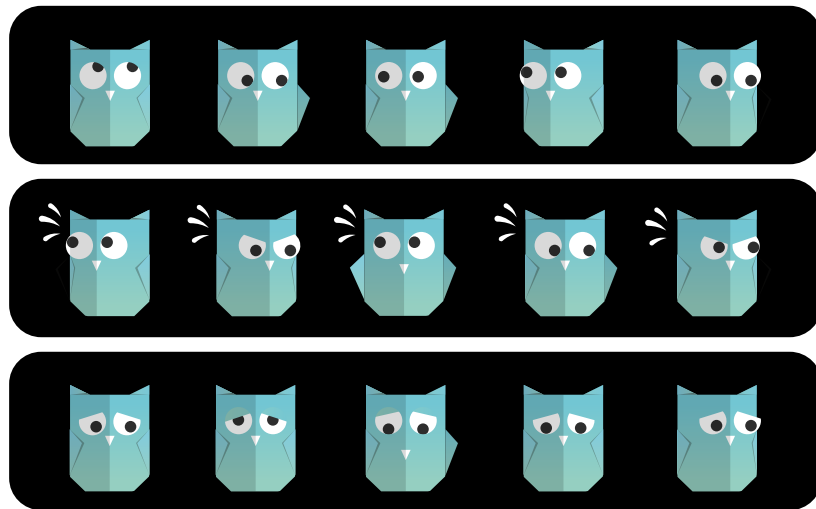
## Origami character

The ears are behind the face block, to show the structure and how to fold to the back, a triangle shadow was added to the border of ears.

The basic eyes are simply circle shape, with eyelid can animate various of eye movement.

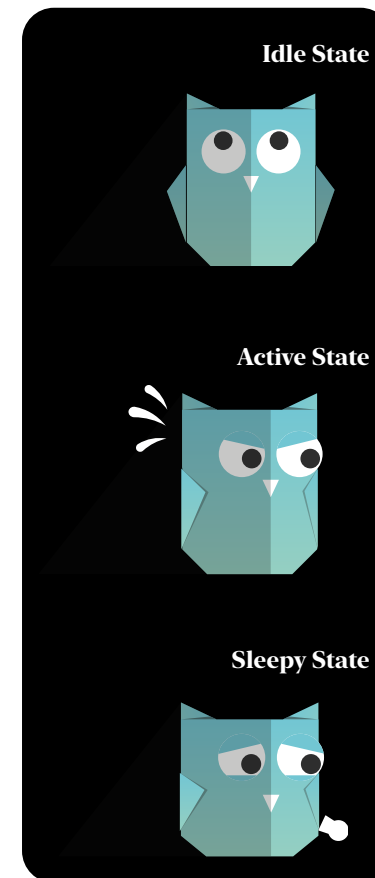
The wings are folded from its back.

The Face block was coloured with linear gradients, and half darker shadow on the side, to simulate the folding effect and multiple the details of character.



In the actual life, humans behaviours and activities are varied, and hardly trackable. Many people are considered the prevention of leaking private data extremely important. For practical and human centred thinking, simplified states that gathering differentiated situation in real life are taking place.

## State design



Idle State

Idle state, or normal state is the state, that represent most of situations, it indicates the character is **available** for communication.

Active State

Active state, or busy state is the state, that represent certain situations, it indicates the character is busy right now, and **unavailable** for communication.

Sleepy State

Sleepy state, or desire state is the state, that represent certain situations, it indicates the character is in middle of crises right now, and considered as **needed** to communication.



## Clips design

To make character act more like real human with only three states input, which is only represent with limitation.

a vivid animations system has to be considered and well illustrated. Eyes, ears, mouth, and hands, with few elements we suprisingly find out the trousands of combination, that present us numbers of movements, combine with those movements can generated character with personality.

Depending on which state, Each clip contain 1 ~ 3 seconds movement, all illustrated with few body parts. With special algorithms, clips would join together to complete a sequence of animation.

Because of the limitation of my thesis time, I illustrate over 60 clips in general.



*\*The actual colours may differentiated from the print version.*

## Colour design

About the colours of character and its backgrounds, I organised three different type of colour sets: 1. Blue character with orange backgrounds. 2. Yellow character with purple backgrounds. 3. Red character with blue backgrounds. Each colour set of backgrounds contain three different ton settings. It indicated three different state of character.

The reason that, illustrated three state with additional background changes, is the consideration toward old people, who has experiences using smartphone, but lack of focus on slight differential animation changes. For get maximum notification the state changes of character, the entire background changes would be fair enough.



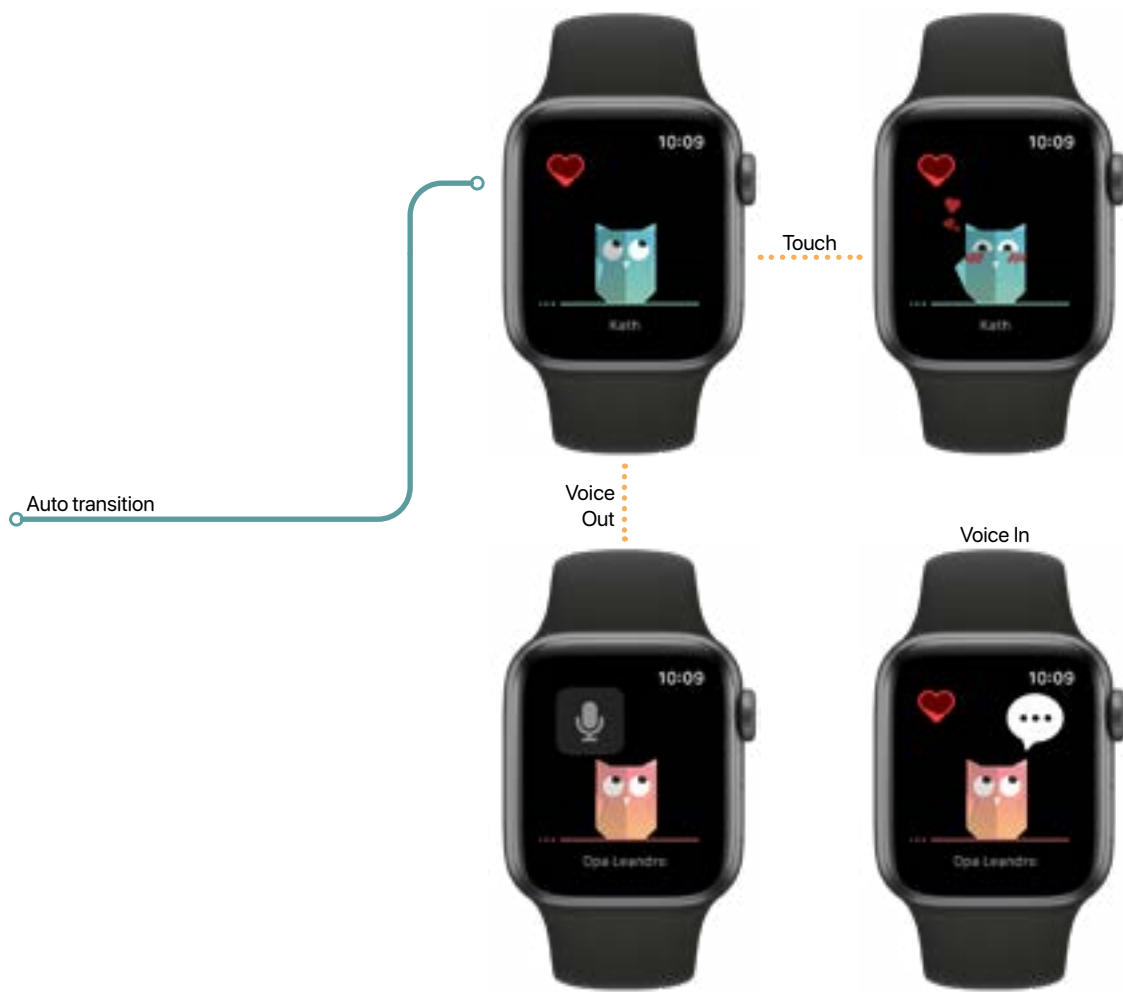
## ***PROTOTYPE***

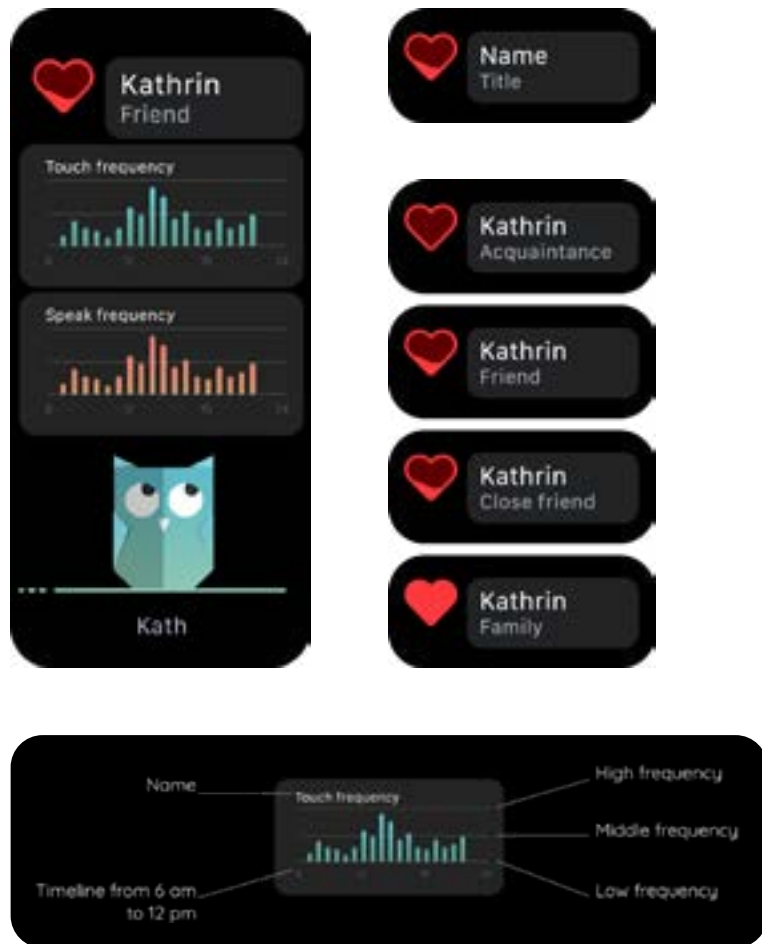
The first basic layout

### Pairing Screen



### Interact Screen





### Statistic Screen

The details of interaction with certain character in certain time can be seen in statistic screen, it consisted of two parts, touch interaction and speak interaction, based on those collected data, under the character's name hat an additional title system, to define and to measure the frequency of communication. The heart shape is a button to enter this view, and also a light-weight symbol for showing the basic information in the main screen.



Customising quotes screen



## Pairing Screen

Screen without connection



Configuration screen



The first layout →



## Configuration Screen

Compared to the layout in wearable devices, the screen in smartphone become more colourful, with three basic colour sets from previous section, individual characters can be easily identified.

One large function that wearable version can not access, is the customise own character. On the one side, to get fully access to control the character, how they behave, on the other side, to let people simply handling with the configuration system, three highly compact variables are designed:

1. **Characteristic** - are you active, or calm?
2. **Attribute** - are you seen yourself as male or prefer female?
3. **Personality** - how do you shape your personality, more flexible or stable?

\* The actual colours may differentiated from the print version.

### Main Screen



Pause setting screen



## **TECHNIQUES**

The way to realise product

**I**n my final project of my educational period, one more thinking or idea I wanna to put into this thesis, is reshaping the future image of interface design.

The world was developed rapidly, interface design as a major branch of product design hat only few years history, and it is progressing and shifting frequently. Compared to the traditional product design, the products of interface are mainly screen based applications. During the innovation of programming techniques, screen based product didn't like the traditional product, that required rapid equipments or conditions to produce. To finish interface application, all we need is merely a laptop and pair hands.

After we enter second decade of 21 century, the preceded development of programming techniques, code less, and uniform of platform are seem to be definitely the possible future of techniques, the barriers between design and technique, the gaps that already existed in traditional product design for decades, are melted slowly off in interface design.

Can interface designer, therefore, also as developer to build and to finish their own ideas? In this project, I'm trying to actually experience that, to build an application from scratch, to find the novel perspective of interface design - Which chemical reactions can take place in the conflict between design and technique?

## Competition on platforms

To realise the prototype, that was made in last “design” chapter; I reviewed the prototype and design decisions throughfully, to understand which functions and techniques are required in this particular project. then make the first technical decision - On which platform should the application been developed and which techniques should be used?

In current worldwide digital market, prehaps it is existed “only” two platforms: iOS from apple and android from google. Compared to android, apples platform has the clearer development environments, unified screen format, and the most well refined health data providing services, which is most useful for this application.



## Declarative Interface - The future tendency of Interface development

The traditional mobile developments process has been established for over decades, the core thinking have always the same, only slightly improvement was taking, but still difficult to understand from points of view of ordinary people. In this decade, things has changed - a new throught of mobile developments has been taken place.

During the keynote of Google Developer Days in Shanghai, Google announced the official “Flutter” UI-framework in 2018, Flutter is an UI software development kit. That can be used to develop applications for Android, iOS, Linux, Mac and almost all of other platforms. The way that Flutter build an interface application is to be called “Declarative programming”. And in 2019, Apple has also released their declarative UI framework - “SwiftUI”.

Declarative UI is best understood in comparison to imperative UI. That’s a fancy way of saying that we tell the framwork how we want our UI to look and work, and it figures out how make that happen as the user interacts with it. It’s more intuitive way to programming a real application. In this particular project, therefore, I decide to use swiftUI as the prime UI framework, to realise the complexity of the interactive interface.





### Using SpriteKit for animated character

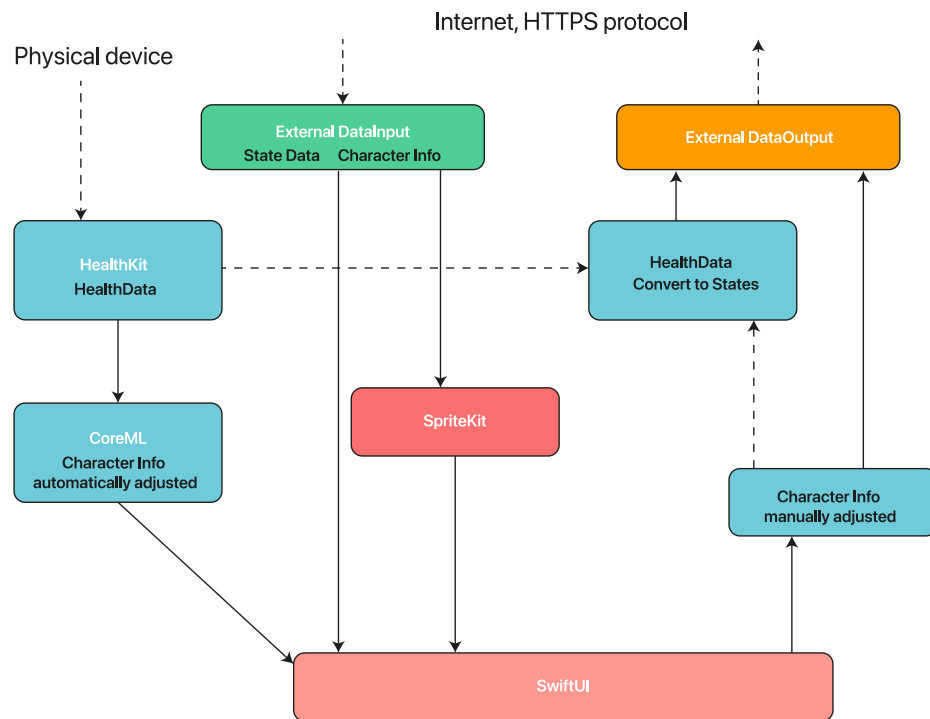
Consider the amount of animation sequences that contain in the product, an high-performance framework for animated contents is necessary.

SpriteKit is the framework, that general purpose for drawing shapes, particles, images in two dimensions. It leverages Metal to achieve high-performance rendering, while offering a simple programming interface to make it easy to create games and other graphics-intensive apps. And with the relative framework “GameplayKit”, can be easily add life to the character and logic of his behaviours, to make character alive and unique.



### Using HealthKit to tracking state data

Wearable devices collected several data in an invisible way, the daily movements, the changes of heart rate, the quality of sleep, even the current locations, those data are highly sensitive and private, the HealthKit framework is designed to share those data between apps in a meaningful way. At the design phase, the prevention of private data has already taken in the consideration. The three state, that with limited information won't transfer the actually sensitive data, all of the evaluating works will happen in HealthKit and coreML frameworks.



## The complete architecture of application

In the processes of programming, especially big project, one of the most important process is designing the appropriate architecture of application. extensible, reusable, and maintainable are the basic principles in programming world. Design pattern, therefore, is aim of planing, how is the architecture of project looks like, and which techniques or frameworks should be implemented to realise the functions that in our initial idea and prototype mentioned.

SKScene:

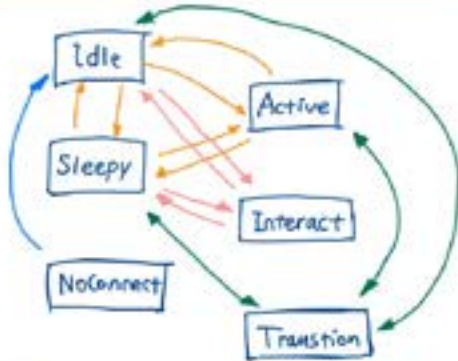
SKNode = TargetCharacter, myCharacter.

Component + Entity Archtech. RenderComponent, movement = Front, Side.

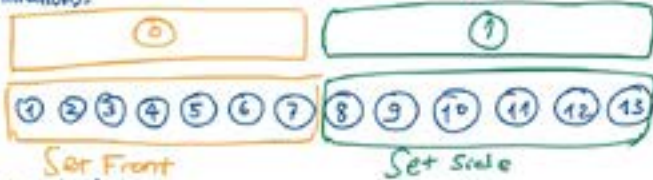
States = Idlestate, Activestate, Sleepystate, InertState.

Texture Idle - Front - Textures - Side

States:



Animations:



Fuzzylogic:

GaussianRandom (Mean = CharacteristicValue)



- RULE 1: Grade  $\geq 0.5 \rightarrow$  True, else False  
characteristic Fact, ActivePerson (Time Active)
  - RULE 2: Grade  $\geq 0.5 \rightarrow$  True, else False  
Attribute Fact, Feminine Person (Time Feminine)
  - RULE 3: Grade  $\geq 1.5 \rightarrow$  True, else False  
Personality Fact, Flexible Person. (Time Flexible)
  - RULE 4: Grade  $\geq 1/3 \rightarrow$  True, else False
  - RULE 5: Grade  $\geq 2/3 \rightarrow$  True
  - RULE 6: Grade  $\geq 1 \rightarrow$  True
- Elapsed Times

Component:

Animation: Textures = [SKTexture]  
elapsedAnimationTime: TimeUsed  
IsFront: Bool  
AnimationSource: Time. (IdleFrame)  
Index: Int.  
FrameOffset: 0  
ShouldRepeat: Bool

Entities:

DwlCharacter: Size  
Animations  
appearTextures  
IsFront: Bool  
IsTouchable: Bool

Components:

AnimationComponent  
InteractionComponent  
RenderComponent.  
RulesComponent.

Entity: isConnected,  
Clips: Initialization:  
FacingDirection.

Interaction: Touch  
Drag

Rules: Input: characteristic  
Attribute  
Personality

Classify:  
Front: calm ..... active = more FrontClips  
Masculine .... Feminine... more Different Clip  
Stable .... Flexible... more SameDirection  
Gaussian Random, Shuffled Random

AnimationComponent:



variables: ruleSystem.state("Individuality") = Individuality.

Facts: Calm characteristic Low/High  
active Attribute Low/High  
Masculine Attribute Low/High  
Feminine Attribute Low/High  
Stable personality Low/High  
Flexible.

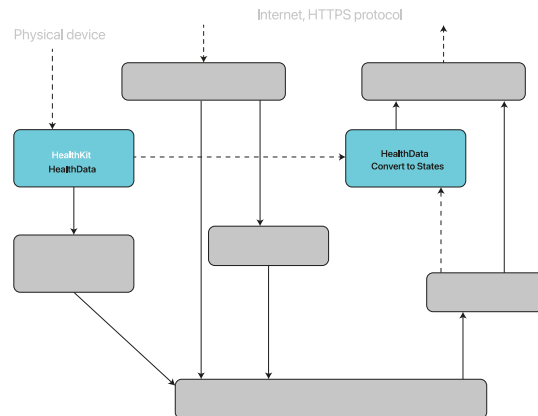
Character Input: characteristic:  
Attribute:  
Personality:  
Elapsed Times + dot

UIStatus Input



General planing of structure of application

## Healthkit and CoreML, anthropomorphism classify the designed animations



The first problem we are facing, is to base on limited health data, that available with proper sensors in apple watch, to animate smoothly, and to convince people to believe, that character is act like a living being - is to be called anthropomorphism.

Due to the prevention of sensitive data leaking, the actual health data would be risky to sharing online, and for most people would not be able to allow the operation. Therefore, in the general architecture of application, I was planed the handling data only allows to happens in the local machine.

Anthropomorphism is an challenge for development, and also the impact between design and development. It has to be fully understood the logics during the development phase, then be able to illustrate the proper animations.

In the development phase, Two type of inputs was taken consideration: 1. the auto collected sample data from HealthKit. 2. the configurating inputs that operate by user.

In the ideal design of the application, sample data will send to CoreML framework (Machine Learning framework), to reshape the personal person-

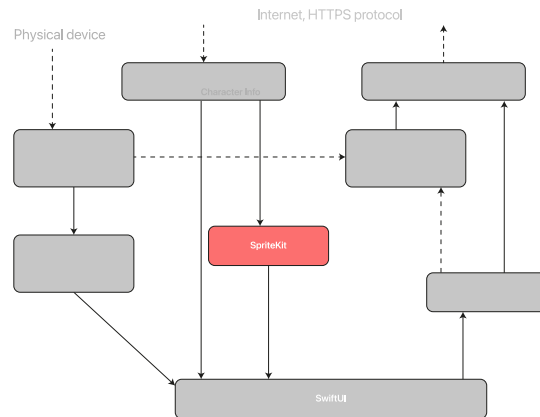
ality. But in this current phase, I'm trying to use some sample health data, to simulate the logic of anthropomorphism. And also for the configurating of personality, Machine Learning can take over, auto generated personal settings, as optional, users can adjust those settings based on three variables:

1. Characteristic
2. Attribute
3. Personality

In the design phase, after completed the basic logics of anthropomorphism, the each clip of animated character has to be classified. To show the combination of design and technique intuitively and to reduce technical work in limited time, I've simplified the relations between them. For instance, characteristic value represents how active is the user, the higher value of characteristic, reflected to the interface, is the character prefer act in the side direction. Personality value represents how flexible, the higher value of personality, the less remain the character in the sample direction. And the higher value of Attribute, means the character acts more new actions.



## The SpriteScene, how character animated



The second problem is, how to use SpriteKit framework to integrate with UI framework. Although SwiftUI was made huge improvement in Juni 2020, it's still have no solid solution for communication between SpriteKit Scene and SwiftUI, for the reason of compromising, the data changes come from SwiftUI would store in the global data storage in iOS, then let SpriteKit read from it.

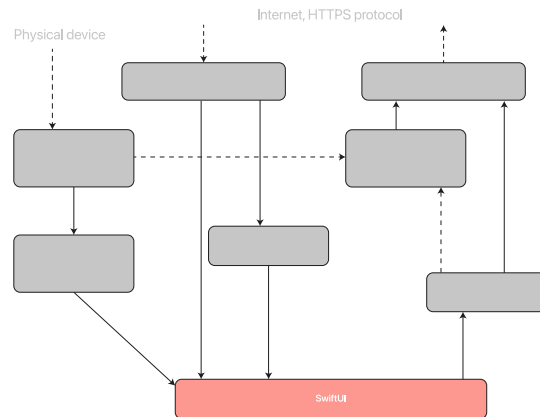
Inside of SpriteKit Scene (SKScene), the character object would be implemented with entity-components architecture. Each character object is an entity, and each entity contain four components, that handling different features of character. The benefit of this structure is the extensibility of character. It is be able to add more features by adding components in entity object. Currently the character entity object is connected with four components:

1. RenderComponent, it's handling how to show character into the SKScene.
2. AnimationComponent, the part of animations.
3. RulesComponent, this component read the variables of configuration site with three parameters, analyse and give appropriate animation orders.
4. StateComponent, this component read the input from CoreML (machine learning), in this practical application, directly from HealthKit, to dealing with state changes.



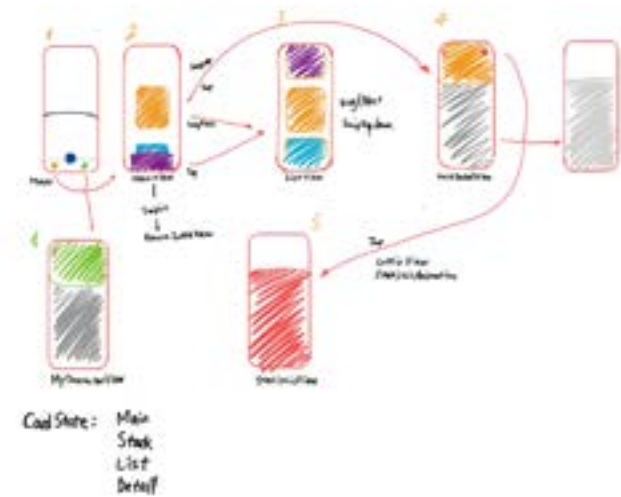


## SwiftUI, design from data perspective



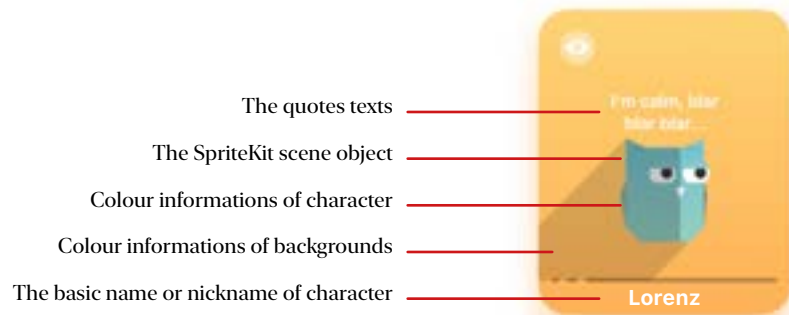
SwiftUI is a GUI framework, that in 2019 first time announced. In this particular case, SwiftUI is responsible for dealing the interactive events, optical appearances, and the transition animation between views.

At beginning, after reviewing the prototype, the basic model must be well considered, and inevitable making some optical changes from design phase.





## The fundamental data model



```
// MARK: Character Data Model

struct Character: Identifiable, Equatable {
    static func == (lhs: Character, rhs: Character) -> Bool {
        return lhs.id == rhs.id
    }
    // for identify the individual character data
    var id = UUID()
    // the name of character
    var name:String

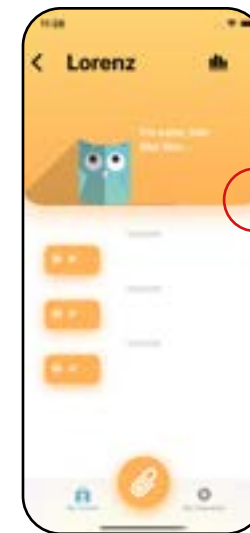
    // the quotes of different state
    var stateName:(CharacterState:String)

    var scene:SKScene
    var characterState:CharacterState
    var colorSet:ColorSet

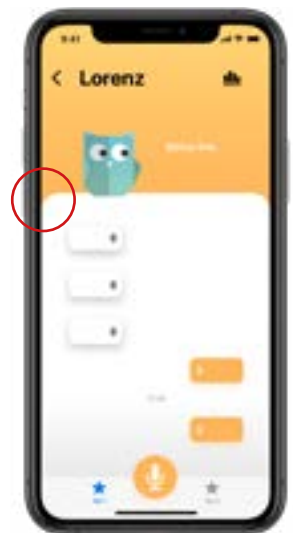
    // The auto generated properties
    var backgroundColor:String {
        convenientFuncs.getBackgroundColor(state: self.characterState, color: self.colorSet)
    }

    var characterColor:(Double, Double) {
        convenientFuncs.getCharacterColor(color: self.colorSet)
    }

    var voiceStorage:[VoiceModel]
}
```



The detail screen in develop phase

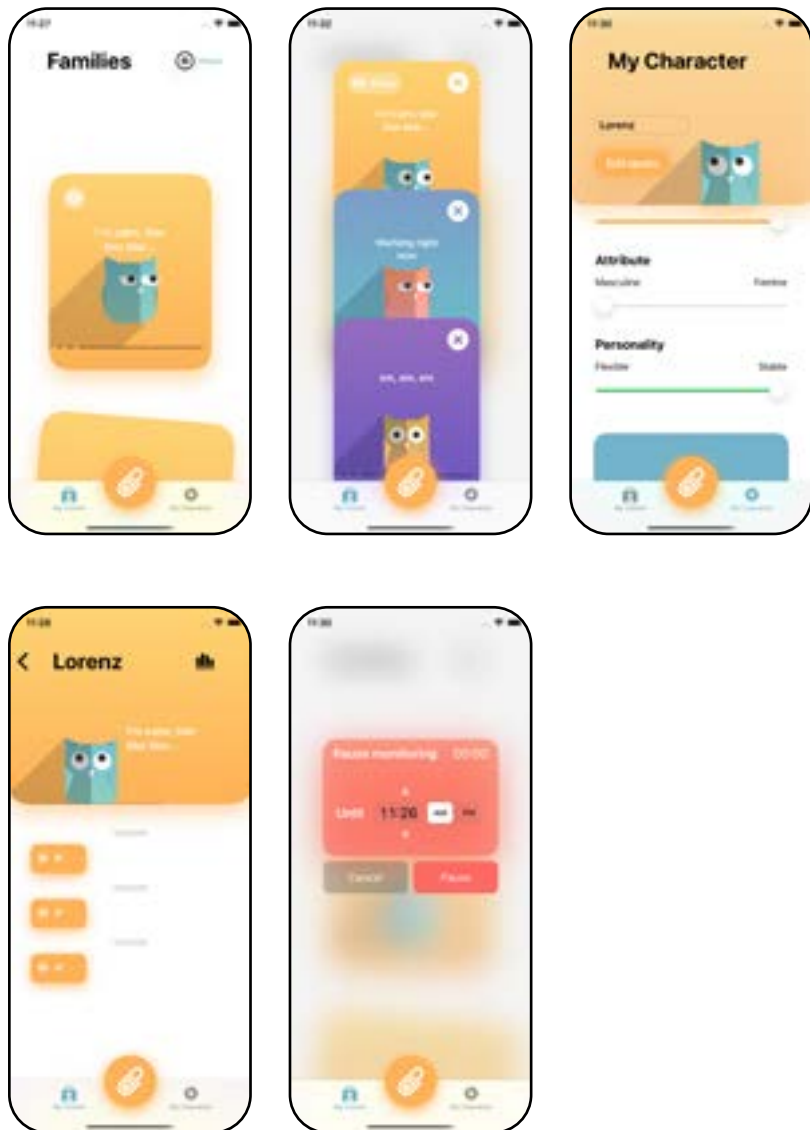


The detail screen in design phase

The differences  
in develop phase

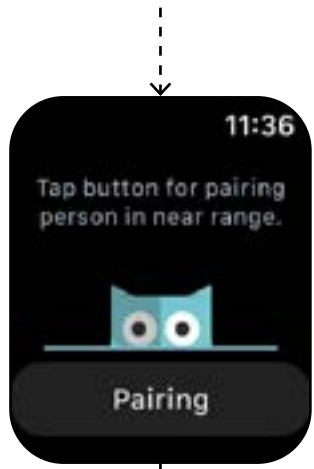
The complete code please review in my github repository

**<https://github.com/abuer008/Connecting>**



**The complete iOS Interface**

### The complete watch Interface



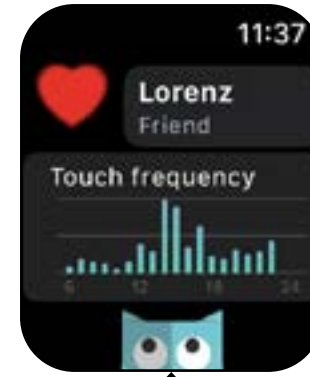
start up



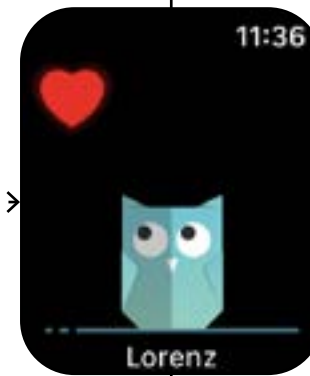
searching



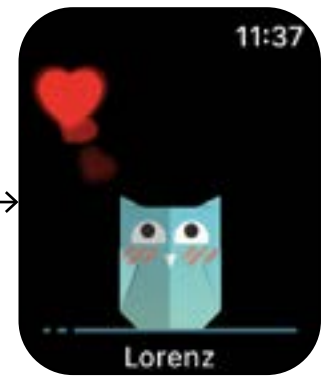
successfully finding connection



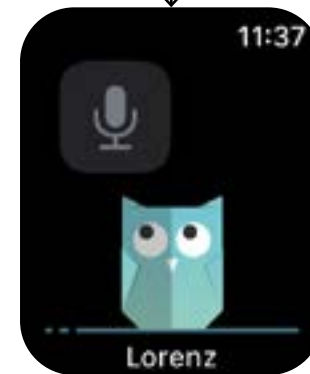
statistic screen



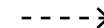
the default main screen



touch reaction



voice operations



## **CONCLUSION**

Reshaping the family form and interface design

## Reshaping the family form

The change in social norms and values has meant that marriage has lost its symbolic content and is now only one of several biographical options, albeit still the most common way. The increasing “competition between pleasures” has contributed to the decline in the number of marriages. The advantages associated with marriage have diminished, and living alone and unmarried together or separately as a couple have become culturally more acceptable and attractive as a result of the development of prosperity, the liberalisation of sexual morals, and the increasing participation in education and employment of the young generation of women. Since life expectancy in Germany has already reached a very high level since the 1970s, the population is ageing both from the base (decline in births) and from the top. So we are dealing with a fertility and mortality-driven ageing process that has lasted for more than 40 years, which has burned itself deeply into the current age structure of the population and has developed its own dynamic. The demographic ageing of

the population is an irreversible process that cannot be stopped in the next 50 years. Even in the event of a drastic and sustained increase in the number of births - it would take decades before the ageing effect programmed into the age structure would be improved. The ageing of the population is likely to intensify in the near future and become a permanent issue with a growing imbalance in the burden between the generations.

What is an ideal alternative form to the contemporary family institution? Johannes Huinink from the University of Bremen distinguishes between three ideal-typical scenarios[1]. The first scenario claims a “lasting loss of importance of intimate partnership and parenthood” in the direction of a dissolution of stable, intimate and familial institution within an “autistic society”. The second scenario claims a “permanent polarisation of the society” in two parts, one of them, the family is great importance, the people that belong this part, would have several children. In the other part of the population, the professional careers would

be given the highest priority and getting babies should avoid. Huinink sees the third scenario as most likely direction compared to the path to an “autistic” society or a permanently polarised society: “Maintaining the meaning and increasing the diversity of life forms”. In this case, the mechanisms and consequences of demographic development are increasingly recognised, and a response is made by improving the structure and conditions for family lifestyles. People will develop lifestyle strategies that allow a match between family and individuals.

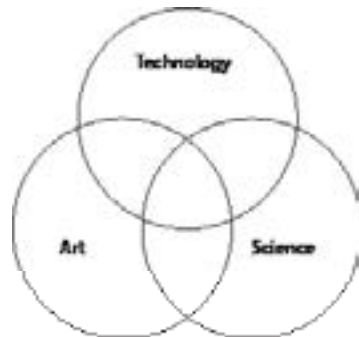
In my opinion, techniques are not set in stone, and it can deeply affect our lives. In this particular case, the shifts of family form in future can be replaced, the three key features of family relationships: spatial distance, frequency of contact, and quality of communication, can be easily achieved by means of digitalisation. It is the perfect way to realise that, what Huinink hat announced the third scenario of future family form.

[1] Huinink, J. (2017). *Bedeutungsverlust, polarisierung, wachsende vielfalt?* In T. Mayer (Ed.), *Die transformative Macht der Demografie* (pp. 395–406). Springer Fachmedien Wiesbaden. [https://doi.org/10.1007/978-3-658-13166-1\\_24](https://doi.org/10.1007/978-3-658-13166-1_24)

## Reshaping the unity of interface design

There are two important periods in the history of definition of modern design concept: In the 1920s, a seeking of scientific design products, and in the 1960s, the consideration for scientific design process. One is represented the most significant movement of design history, and the other would be consider as the origin of modern design concept. After the industrialisation at the beginning of the 20th century, under a series of economic and social miracle, a new model of design concept has been developed and represented by the staatliches Bauhaus in Germany. "Art and Technology: A New Unity" - is the one of the most famous slogan from Cropius,

who was founded the staatliches Bauhaus in 1919. The structure of technology, art and science - the Trinity was the original idea that the Bauhaus wanted to achieve.



Then in the post-1950s, the Hochschule für Gestaltung (HfG), opened at Ulm explicitly claimed the heritage of the Bauhaus, the design education system it created, has a profound impact all around the world. If Bauhaus is the pioneer of modern product design, then Ulm is the promoter. Its design philosophy and educational thought are still the core part of modern design.

In the "design methods movement" of the 1960s and through the new model of design education in Ulm, we see a desire to produce works of art and design based on objectivity and rationality, that is, on the value of science. The purely rationalism, systematic, and scientific design process turns design into an applied (human and social) science. Ulm concerned science and technology as the basis of industrial design. Design tends to be considered as applied science, mainly in the humanities and social sciences. As a result, one often hears, that in design schools if the problem is well stated (scientific inquiry has been conducted), the solution will follow almost automatically, as if the creative part is

completely eliminated.

However, with deuced rational, deuced emphasis on technical factors, and their industrial characteristics of products, thus ignoring the basic psychological needs of people, leaving the design style indifferent, lacking personality and character, and monotonous.

## The Epistemology of interface design

From the contemporary view, the ethical goal seem take the more core role from designs perspective or sciences perspective. The global environmental issues now should be a central concern, or in other words, a balanced humankind in a balance world. Designers now are expected to act rather than to make: In philosophical terms, one would say that design pertains to practical, not to instrumental, reason, or that the frame of the design project is ethics, not technology. In existentialist terms, design responsibility means that designers always should be conscious of the fact that, each time they engage themselves in a design project, they somehow recreate the world.

The pursuit of philosophy in the design discipline has led to the artistry of design projects. In the field of industrial design, it is often easy to deviate from the planned direction and develop in two different directions:

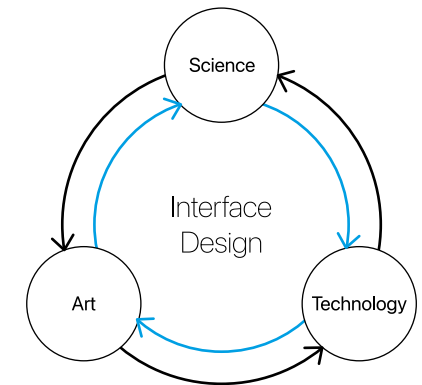
1. The impact of excessive anthropology in design projects, all major philosophers have devoted part of their work explicitly or implicitly to anthropological is-

sues, but too many philosophical attributes in design projects deviate from the original intention of product design and are suspected of turning into artefacts of art. 2. Effect of product engineering and marketing on design, i.e. the determinism of instrumental reason, and central role of the economic factor as the almost exclusive criterion, just like the consequences in 1960s the scientific design, it leads one to consider the user as a mere customer or, at best, as a human being framed by ergonomics and cognitive psychology, an outdated implicit epistemology of design practice and intelligence, an overemphasis upon the material product, an aesthetics based almost exclusively on material shapes and qualities, a code of ethic originating in a culture of business contracts and agreements.

In industrial design the relationship between science, technology, and art has always been the core of the discussion. In the various periods experienced in history, the three have their own emphasis, and they have developed completely different design directions, and have also exposed various drawbacks. The digitalisation and emergence of digital products give us the first opportunity to fully integrate these three concepts. Digital applications are no longer limited to materials and processing techniques, and feedback on the market is more direct and clear. As a brand-new product form, digital applications seem to have the concept of design ethics run through. The gap between art, science, and technology is broken through on this form. Traditionally, the separating of idea and technology has led to many unrealistic, whimsical product ideas from designers. Engineers do not know much about the design concept of the product, as a result, the final product is very different from the initial design.

With the innovation of technology, the requirements of interface designers should not only be limited to the realisation of design philosophy ideas, but also the feasibility of technologies, from the proposal of ideas, the research of user needs, to the realisation of final product should be the focus of participation. In the epistemology of interface design, the disputes

between art, technology, and science are settled here. They should not be distinguished from each other, as a means to realisation of ideas, to cooperation, and to achievement.







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*Annika Frye*

*Bowei Xiao*