Robots Everywhere notes literature Kim

App development
Interface
Effects of interface design factors on affective responses and quality evaluations in mobile applications

[1] Bhandari, U., Neben, T., Chang, K., & Chua, W. Y. (2017). Effects of interface design factors on affective responses and quality evaluations in mobile applications. *Computers in Human Behavior*, *72*, 525-534.
Link: https://www.sciencedirect.com/science/article/pii/S0747563217301176?casa_token=5ZXOSjALxh4AAAAA:Db2hmS3kAsAULCtNkCYnvvNFKSURjsEIoCjMZ0bTJXS-v4-GIs-KNG6xgD8TnuwxiAvrSjvXkQ

Aesthetics
The possibility of an individual downloading a mobile app is determined by the individual's perception of the quality of the mobile app. The quality of the user interface is perceived by individuals along two aspects: pragmatics and hedonics. "The interface design of an app can convey a perception of quality from individual's daily task perspective (pragmatic) or increasing the individual's competency thereby increase user's pleasure of the interaction (hedonic)" [1]. The individual's needs, preferences and context of usage need to be taken in serious consideration when designing an app that will be used by individuals.
"Aesthetics contributes to a very important role in HCI (Human Computer Interaction) as it has immense impact on usability issues that will have significant effect on the individual's perception towards the quality of the mobile app" [1]. For example, an interface that is aesthetically designed will catch an individual's attention, thus causes him/her to be fully immersed and engaged in an activity. Aesthetics can be categorized into two dimensions. First, classical aesthetics, which has been incorporated with attributes such as pleasantness, clarity, cleanliness, symmetry and order [1]. Classical aesthetics increases the understanding and sense making capability of an individual, while reducing ambiguity [1]. Second, expressive aesthetics, which is represented with traits such as creativity, fused with novelty, special effects, and sophistication and being fascinating [1]. Expressive aesthetics increases the individual's involvement and arousal with the interface [1]. "A good aesthetically designed interface requires a balance of both classical and expressive aesthetical elements" [1].
Emotional experience can be divided into 2 categories. First, valence, which is divided into positive and negative. Valence is used to express pleasing dimension affection and some behaviors [1]. Second, arousal, which is divided into calming and exciting. Arousal is induced through attentional networks where pertinent pieces of sensory information are selected to attend to. "Stimuli that are emotionally aroused are more likely to be remembered irrespective of the huge amount of attention dedicated for the distracting task" [1]. Interfaces with high balance and high originality are evaluated to be more pragmatic and hedonic.

Software Process Models for Mobile Application Development: a Review

[2]Jabangwe, R., Edison, H., & Duc, A. N. (2018). Software engineering process models for mobile app development: a systematic literature review. *Journal of Systems and Software*, *145*, 98-111.
Link: https://www.sciencedirect.com/science/article/pii/S0164121218301638?casa_token=Z-GjJAo43ogAAAAA:oJi5LI6kOaZywXCvyOJ1xqf6Pc_XD-IKgVtkj7i7LaUwW3Lxbz5g7ANp37PGx2OhGcd6QNXSBA

Software
In mobile application, the main characteristics are: user Requirements are changing with time, change is frequent, development time is short, and the emphasize is more on User

Interface. Agile is the most appropriate software process model when developing a mobile application [2]. "Agile process model uses continuous customer feedback to successively refine and deliver a software system" [2]. Agile is best suitable for mobile applications, as "it follows a combination of iterative and incremental approach where the entire SDLC is broken into small iterations which helps the project to adapt to changes rapidly, it minimizes overall risk, it gives importance to Customers and their feedback, it believes in self-organizing teams and customer collaboration for developing an amply satisfied product and the numerous cycles of testing and quality assurance increases reliability" [2].
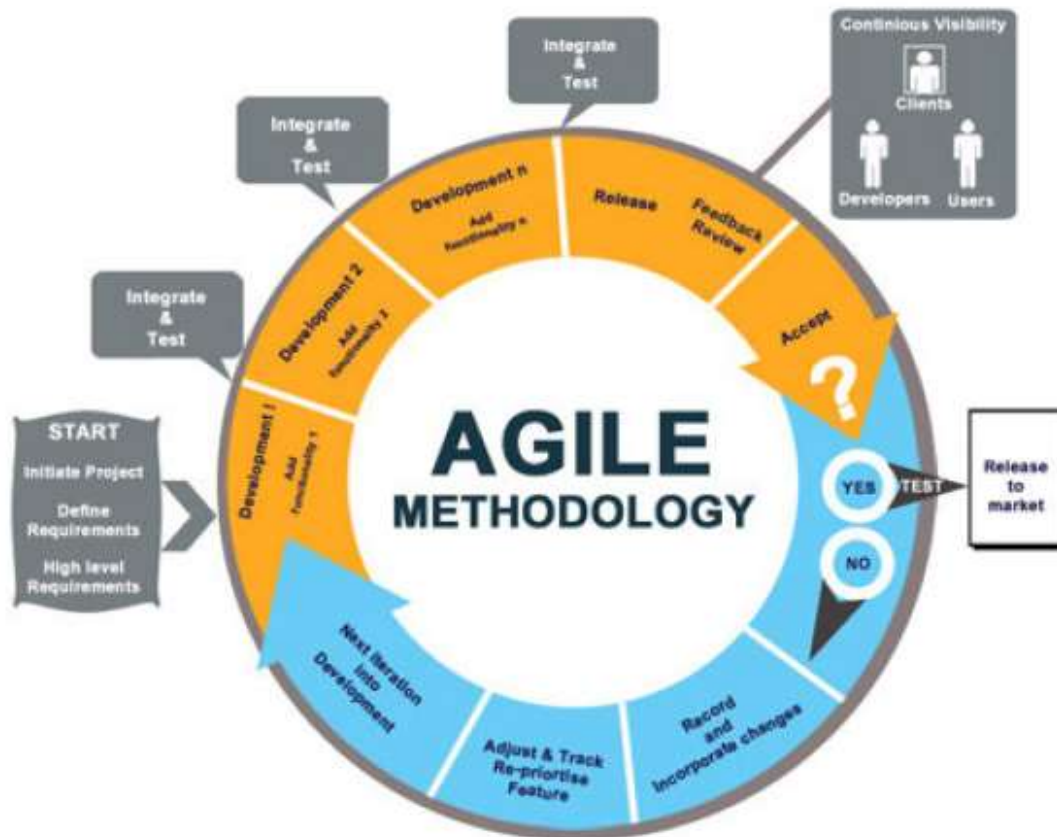

Figure 1 agile methodology

Agile can be seen as an umbrella that has various agile methodologies which include Scrum, XP, Lean, Crystal, FDD,Kanban, ASD and DSDM, which all share Agile characteristics [2]. Mixture of agile approaches, specially, Scrum, XP, Lean can best fit for mobile application development [2].

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Medical
Social Contacts and Mixing Patterns Relevant to the Spread of Infectious Diseases

[3]Mossong, J., Hens, N., Jit, M., Beutels, P., Auranen, K., Mikolajczyk, R., ... & Heijne, J.
        (2008). Social contacts and mixing patterns relevant to the spread
        of infectious diseases. *PLoS medicine*, *5*(3).
        Link: https://journals.plos.org/plosmedicine/article/file?type=printable&id=10.1371/journal.pmed.0050074

In the study *Social Contacts and Mixing Patterns Relevant to the Spread of Infectious Diseases* [3], it was measured that per day a person had an average of 13.4 contacts. It was identified that "children had more contacts than adults, those living in larger households had

more contacts, weekdays resulted in more daily contacts than Sundays, more intense contacts (of longer duration or more frequent) tended to be physical, approximately 70% of contacts made on a daily basis lasted longer than an hour, whereas three-quearters of contacts with people wo where not previously known lasted less than 15 minutes, and people of the same age tended to mix with each other" [3]. To conclude, 5- to 19- year-olds would be suffering the highest burden of respiratory infection during an initial spread and school-aged children had the most contacts (especially with their age group) compared to other groups [3].

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Similar products/technology
Toward a novel design for coronavirus detection and diagnosis system using iot based drone technology

[4] Mohammed, M. N., Hazairin, N. A., Al-Zubaidi, S., AK, S., Mustapha, S., & Yusuf, E. (2020). TOWARD A NOVEL DESIGN FOR CORONAVIRUS DETECTION AND DIAGNOSIS SYSTEM USING IOT BASED DRONE TECHNOLOGY. *International Journal of Psychosocial Rehabilitation*, *24*(7). Link: https://www.researchgate.net/profile/Assoc_Prof_Dr_Mohammed_Abdulrazaq/publication/340261431_TOWARD_A_NOVEL_DESIGN_FOR_CORONAVIRUS_DETECTION_AND_DIAGNOSIS_SYSTEM_USING_IOT_BASED_DRONE_TECHNOLOGY/links/5e8dbaa392851c2f52888867/TOWARD-A-NOVEL-DESIGN-FOR-CORONAVIRUS-DETECTION-AND-DIAGNOSIS-SYSTEM-USING-IOT-BASED-DRONE-TECHNOLOGY.pdf

"It is necessary to set up a speedy standard symptomatic test for the recognizing of the infectious malady (COVID- 19) to avoid consequent minor spread. Thus, the fast and precise identification of coronavirus is hence getting to be progressively critical" [4].
Dry cough, fever, breathing challenges and breath shortness are common marks of infection. The standard suggestions to avoid outbreak are: usual hand washing, covering each nose and mouth during sneezing and coughing [4]. Maintaining a distance from near contact with anybody to avoid getting in contact with sickness like sneezing and coughing.
"The IoT system in medical is now in an advance setup that contains so many varieties of mechanism like smart sensors, medical equipment, big data, cloud computing, telemedicine, clinical information system, and many more. IoT technique is categorized into; remote monitoring of patients, remote tracking and monitoring of health, sensor based devices for hand wash monitoring, and monitoring of interactive RFID activities" [4].
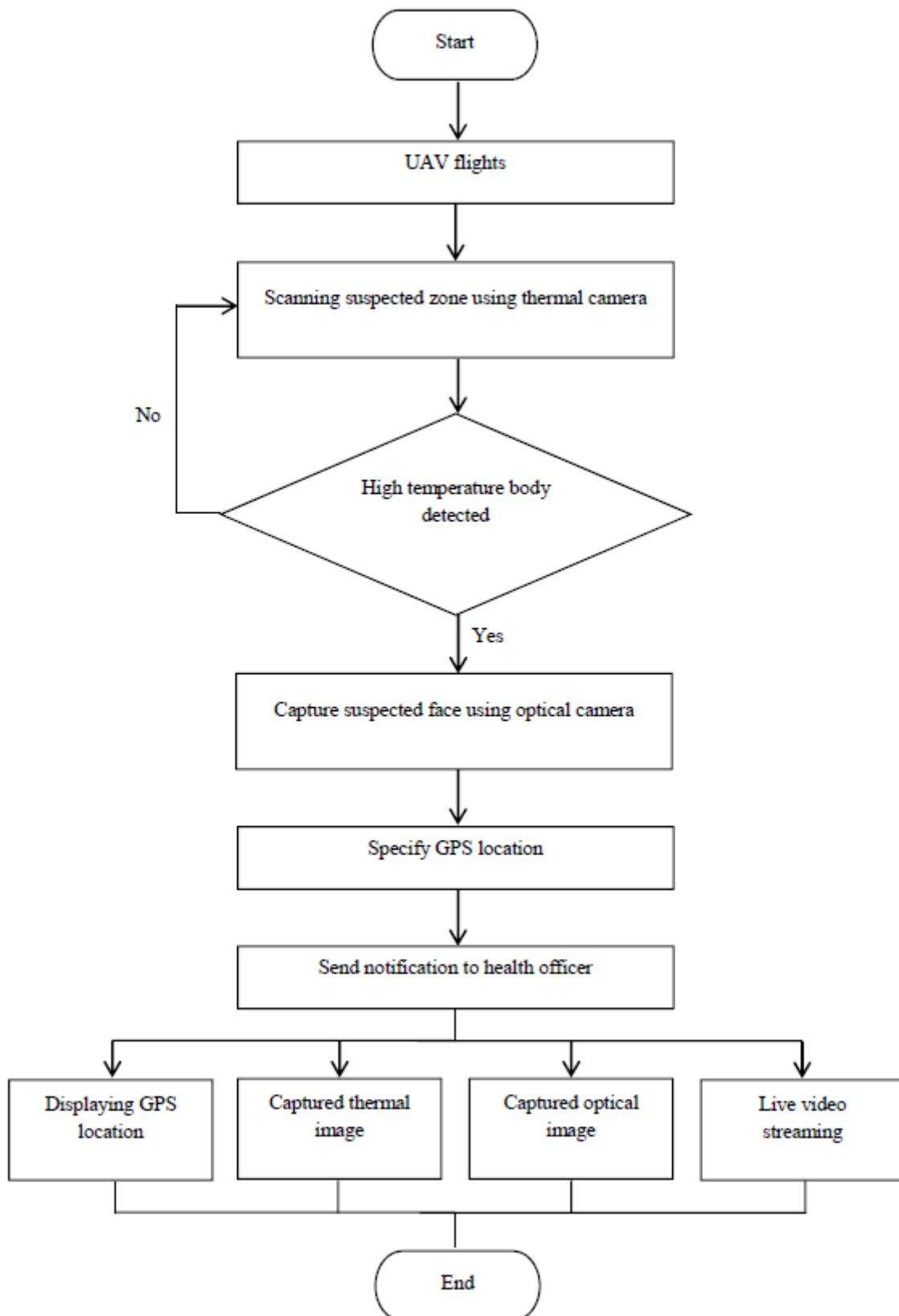
figure 2 flowchart of the system

One of the best and suitable ways to prevent the coronavirus from spreading is detecting the symptoms early. High body temperature is one of the most common symptoms [4]. Having a real time monitoring system of the screening process that automatically appear the thermal image of temperature of people is needed [4].

According to the authors, it can be concluded that the technology of the remote sensing and detection that presents an assortment of ways for identify, screening, and monitoring of coronavirus, give an extraordinary guarantee and potential in order to fulfil the demands from the healthcare system [4].

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Ethics

Proposed guidelines aim for safe, effective mobile health apps

[5] O'Reilly, K. B. (2018). Proposed guidelines aim for safe, effective, mobile health apps. *Chicago, IL: American Medical Association*.

Link: https://d8.ama-assn.org/practice-management/digital/proposed-guidelines-aim-safe-effective-mobile-health-apps

There are proposed guidelines available for mobile health apps. These call for assessment in four vital areas. First, operability, which is checking whether a mobile health app installs, loads and runs in a manner that provides a reasonable user experience [5]. Second, privacy, which is whether the app protects the user's information, including protected health information, in full compliance with all applicable laws, rules and regulations [5]. Third, surity, which is whether the application is protected from external threats and Fourth, content, which is whether the information provided in the mobile health app is current and accurate [5].

Concerns have arisen about the quality of mobile health apps. For example:

"While some mobile apps and devices are subject to FDA regulation, others are not, and do not undergo rigorous evaluation before deployment for general use, which raises quality and patient safety concerns" [5]

Furthermore, mobile health apps should have a high-quality clinical evidence base to support their use in order to ensure that the apps are save and effective [5].

To conclude, "Physicians recognize the tremendous potential in digital health tools, but without a framework to evaluate them, there could be harmful effects." [5]