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Towards Hajj and Umrah Digital Transformation using Smartwatches

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Abstract

Many of us now rely on smartwatches as an integral part of our lives. With a compound annual growth rate of 19.6%, the smartwatch market has become one of the world's most popular markets. With Hajj and Umrah undergoing digital transformation, smartwatches can be used to enhance pilgrims' experience. NUSK is a smartwatch launched by "SDAIA" last Hajj season to provide pilgrims' information and several health services. We use "Bangle.js", an open-source smartwatch, to present some Hajj and Umrah use cases that will help achieve our country's ambitious vision towards digital transformation. We also propose incorporating "Bangle.js" into the labs of microprocessor courses at Saudi Computer Colleges to allow students to broaden their skills, abilities, and thinking towards real-life applications.

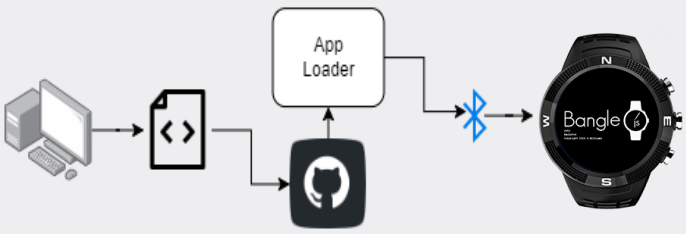
Development Tools

JS

Espruino IDE

Bangle.js App Loader

Methodology



Implementation

1) Prayer Time Alarm: generate prayer times identical to Umm Al-Qura calendar.
2) Tawaf Counter: counts the number of Tawaf rounds automatically.
3) Heartbeat Monitor: display and record the pilgrim's heart rate.
4) Misbaha: an application that helps the pilgrims in their rituals.

Future Work

- Translation to Arabic language
- Updating the prayer times based on the location automatically
- Use Bangle.js as data gathering source
- Add bangle js and other IoT gadgets to our universities' curriculum

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