

### Software Engineer – Mobile, Web & AI Integration (KTP Associate)

<b>School / Department:</b>	School of Architecture, Built Environment, Engineering and Computing	<b>Grade:</b>	£38,000 - £42,000
New appointees to Birmingham City University will ordinarily be appointed at the entry point of the appropriate grade			
<b>Responsible to:</b>	Academic Lead	<b>Responsible for:</b>	N/A

### Job Purpose

This position forms part of the Knowledge Transfer Partnership (KTP) programme co-funded by Innovate UK and Nehemiah United Churches Housing Association Limited. The Software Engineer – Mobile, Web & AI Integration (KTP Associate) will work on a 28-month collaborative innovation project to create a secure digital platform combining an AI-enabled app, repair dashboards, and IoT home sensors for Nehemiah United Churches Housing Association Limited, to be used cut arrears, prevent housing-related illness, and reduce manual errors, ensuring inclusive access to modern services while building safer, healthier communities across the West Midlands.

#### The Project

The project is focused on facilitating Nehemiah United Churches Housing Association (NUCHA) to become a digitally enabled, resilient housing provider, delivering safer homes, improved tenant outcomes, reduced operating costs, and stronger ratings from the Regulator of Social Housing.

#### **Key objectives**

- Develop *Nexus* – Nehemiah’s proposed secure tenant platform – which will integrate a mobile app with AI/NLP chatbot functionality, an automated rent and repairs dashboard, and contractor management tools for invoice approval.
- Embed Secure by Design principles, aligned with ISO 27001, to address pressing cyber security vulnerabilities and reduce reliance on external IT providers.
- Drive organisational and cultural change, breaking down siloed working, enhancing digital skills, and supporting succession planning to sustain innovation beyond the project.

### Main Activities and Responsibilities

The successful candidate will lead technical design and development of the project. The position is for 28 months. The expected start date is as soon as is practical.

The Associate will work on: -

- Defining functional requirements for the NEXUS system to provide a front-end to the current HomeMaster system, supporting development of a client mobile app chat bot, AI driven dashboards for decision-making, IOT-enabled predictive property maintenance and contractor management.
- Designing, developing, testing and implementing the IT architecture, data model and database for the NEXUS system.
- Designing and developing a mobile interface to HomeMaster that includes a Natural Language Processing (NLP) based chatbot to provide multi-lingual intuitive access.

- Deploying sensors and developing an AI/ML algorithm to analyse sensor data for predictive property maintenance.
- Designing and developing ML powered automation and smart invoice reconciliation tools to support contractor management.
- Producing operational manuals and providing training for new or modified systems.
- The role requires the successful candidate to embed new IT methods/procedures through co-working with a multi-disciplinary team and embedding knowledge and skills to support post-project improvements.

The Associate must have completed their latest degree (studies) within the last five years and have the following key attributes to ensure the project's successful completion.

### Person Specification

<b>Essential Criteria</b>	<b>Application Form / Support Statement / Interview</b>
1. Educated to degree level in a computing discipline with a First Class (or 2:1 Honours).	Application Form
2. Excellent communication skills to express ideas effectively, orally, graphically and in writing to articulate complicated matters between the academics and the company project team members.	Support Statement / Interview
3. An ability to work to tight deadlines with diligence, attention to detail, and maintain high standards of work.	Support Statement / Interview
4. An ability and aptitude to work effectively as part of an interdisciplinary team; and self-management and planning skills to make optimum use of time.	Support Statement / Interview
5. Strong leadership skills in successfully implementing and embedding new innovations within a company or organisation.	Support Statement / Interview
6. Strong background in React Native.	Application Form / Support Statement / Interview
7. Solid understanding of REST to use and build APIs; modern frameworks NodeJS/ReactJS, MongoDB, and SASS; source control repositories e.g. GIT.	Support Statement / Interview
8. Web application development experience with HTML and CSS. Experience of additional programming languages: Python/Java., Familiarity with AI&ML algorithms/models (e.g. prediction-models, NLP).	Application Form / Support Statement / Interview

9. Practical experience in system implementation, systems integration and testing.	Application Form / Support Statement / Interview
<b>Desirable Criteria</b>	
1. MSc/PhD in a related subject or relevant experience.	Application Form / Supporting Statement
2. Experience in embedding Secure by Design principles, aligned with ISO 27001.	Support Statement / Interview
3. Experience of designing, developing and publishing mobile applications (iOS and Android).	Support Statement / Interview
4. Experience in user-centred design; scrutinise user requirements, acceptance criteria and visually communicate ideas to a standard.	Support Statement / Interview
5. Experience in wireframing/mockup tools (e.g. Balsamic/Mockflow).	Support Statement / Interview
6. Familiarity with clouds-based solutions e.g. Azure/AWS.	Support Statement / Interview
7. Understanding of, or ability to learn ERP systems.	Support Statement / Interview
8. Academic acumen to enable successful reporting through research publications in academic journals and marketing/training materials.	Support Statement / Interview
9. A clean driving license and a willingness to travel to utility contracts throughout the UK.	Support Statement / Interview
10. Enthusiastic, self-motivated and able to take a proactive role in delivering the proposal's work plan successfully.	Support Statement / Interview
11. Excellent communication skills to express ideas adequately and articulate complicated matters between the academics and the company project team members either orally or in writing; and to highlight the work of the project in dissemination events.	Support Statement / Interview
12. Excellent analytical, problem-solving, and computational skills, along with being adept at applying knowledge to commercial projects, driving value and making an impact where possible.	Support Statement / Interview
13. Strong interpersonal skills for building effective relationships with colleagues, stakeholders, industry partner.	Support Statement / Interview
14. Willing to take ownership, develop project management skills, work across disciplines, and drive digital change.	Support Statement / Interview

- Application Form – assessed against the application form. Normally used to evaluate factual evidence e.g. award of a qualification. Will be assessed as part of the shortlisting process.
- Cover Letter & CV - applicants are asked to provide a statement to demonstrate how they meet the criteria, and may reference their CV. The response will be assessed as part of the shortlisting process.

- Interview – assessed during the interview process by either competency-based interview questions, tests, work-related exercise, presentation and discussion, or teaching session etc.