

Ok, Google, Are There any Vulnerabilities in my Project?

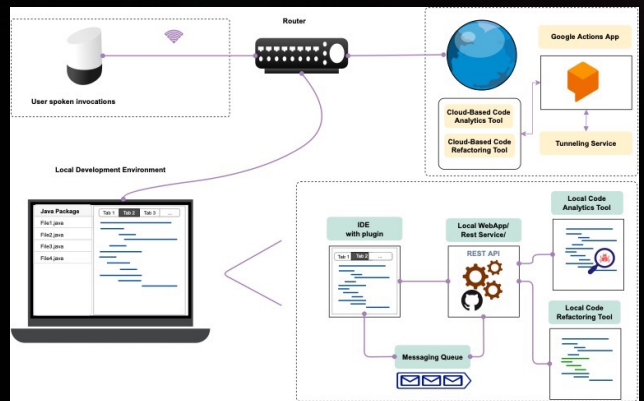
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https://link.springer.com/chapter/10.1007/978-3-031-37717-4_35

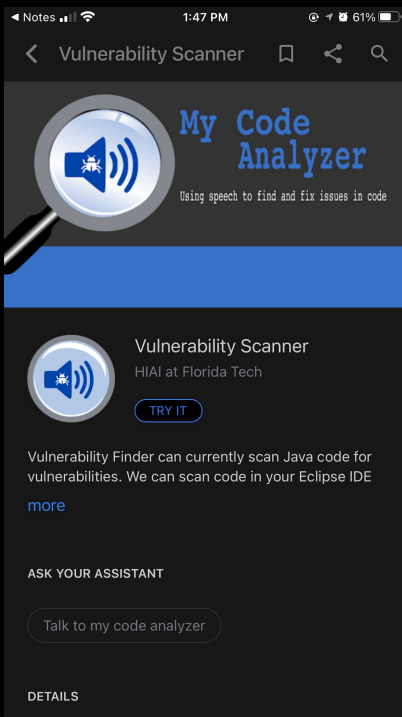
We develop a framework that teams humans with virtual assistants on mobile devices to encourage the use of vulnerability scanners with the goal of mitigating errors in software and their underlying networks and systems

- Adopting virtual assistants in the field of vulnerability detection will allow developers to communicate with virtual agents that will scan code for errors, summarize the results, and help to fix errors while the developers multi-task and remain productive

PROPOSED FRAMEWORK



MOBILE APP



INTENTS

Intents	Context
• Entry Point	
• Vulnerability Detection and Mitigation	
• vulnerability-context-provided	← IDE or Git Repository
• ide-code-scan-confirmed	← User IDE (Eclipse, IntelliJ, etc)
• suggested-git-account-yes	← Browser tab (GitHub, etc)
• other-git-account-provided	← Other Git account
• git-account-confirmed	
• repo-selected	
• auto-fix-errors-requested	
• summary-requested	
• email-scan-report	
• device-account-selected	
• other-account-selected	
• email-address-typed	
• email-address-spoken	
• email-address-spoken-no	
• email-address-spoken-yes	
• Clone Detection	
• code-alignment-option-selected	← User IDE (Eclipse, IntelliJ, etc)
• visualize-clones	
• automatically-refactor-clones	
• Cancel	
• Exit	
• fallback intent	

CONCLUSION & FUTURE WORK

- Devbots and chatbots currently help in mining code repositories
- No system currently exists to work with humans to analyze code using speech
- Our prototype uses Google Assistant to invoke code scanners, capture and report output
- Future work involves usability studies, building custom agents, and investigating security and privacy issues

