بسم الله الرحمن الرحيم

**Proposal**

Developing a tool that enables Continuous Integration and Continuous Delivery in software development.

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**Title:**

Developing a tool that enables Continuous Integration and Continuous Delivery in software development.

**Project type:**

Problem solving, Development.

**Introduction:**

The growth of Agile and the demand of it’s for rapid marketing placing on QA teams for faster delivery cycles is forcing many to replace the older monolithic development models with a more streamlined process . However, pervasive method such as manual testing are keeping the teams for adopting flexible practices like continuous integration and continuous delivery and reaching true agility. Continuous integration is software practice in which small adjustments to the underlying code in an application are verified using automated building and testing every time a team­­ member makes changes .Continuous delivery is process of getting a new builds into production environment as quickly as possible. In order to provide the true agility we need to develop an automated continuous integration, continuous delivery pipeline to enable teams to release a constant flow of software updates into production to quicken release cycles, for lower cost and reduce the risk associated with development.

**Problem:**

* Manual integration and regression testing costs time.
* Defects and errors may go unnoticed.
* Takes time to keep track of all dependencies and compile them alongside the source code.
* Development environment is different from production environment.

**Aims and objectives:**

**Aims:**

* Develop a tool that enables Continuous Integration and Continuous Delivery.

**Objectives:**

* Automate integration and regression testing.
* Report detected defects and errors early .
* Automate building.
* Merge branches that passed the test with the master branch in the VCS.
* Test the software in a virtual production environment.
* Test the software in the actual environment.
* Ensure that each delivered release has pass all tests.

**Outcomes and deliverables:**

* A continuous integration, continuous delivery tool.
* Discuss of how to prepare CI/CD pipelines .

**Research methodology:**

Survey, Action research.

**Hardware and software requirements:**

**Server:**

A server containing compilers for programming language and has ability to build the software code.

**Container:**

Is a server that collect the user environment factor and can run each code independently from the server environment, acts as virtual machines.

**Version control:**

Is a server that provide shared repository to group of developers to integrate their codes.

**All requirements areavailable**.

**Previous Studies:**

* Alan W. Brown, Peter H. Feiler, Kurt C. Wallnau, "Understanding Integration in a software development environment" January ,1992
* Manish Vi rman "understanding DevOps & bridging the gap form Continuous integration to Continuous delivery ". IEEE, March ,2015.
* Lianping chen. "Continuous Delivery : Huge Benefits , but Challenges Too ".IEEE, Jan, 2015.