**Project Abstract Form (Faculty of Engineering - Spring 2022)**

|  |
| --- |
| **Student Names/IDs – Department/Program:**   * Youssef Ehab Tohamy (1001987) – Electrical/Automation and Control * Youssef Ehab Nehad (1002359) – Electrical /Automation and Control * Raed Talal Khalyali (1002322) – Electrical /Automation and Control |
| **Supervisor’s Name(s):**   * Prof: Ashraf Zaher. * Prof: Abdullah Al-Kaff * Prof: Amr Desouky |
| **Project Title: The Agile Destroyer.** |
| **The idea of this project is to make a prototype military vehicle able to receive commands such as: direction of motion, velcoity, and attack target, if exists. In order for the vehicle to be able to adjust its velocity; a control system is to be implemented using a PID control on each motor in order to control the motion of each one separately to guarantee the flexibility of motion. For target recognition, a digital camera is to be used to capture a stream of images of the the vehicle's surroundings; if the target(s) is found, weapons are to be aimed at said target(s) and fired. Our weapon of choice is a laser beam and the target(s) are balloons in motion, this will showcase the laser beam's ability to move with 2 degrees of freedom in the horizional & vertical directions. One of the main goals of this project is to have different controllers working in unison to guarantee the reliability of the system, maintain low latency, and ensure that the digital camera is connected properly to the main controller. The user shall be able to control the system through a mobile application ( currently in development ) allowing them to control the direction, velocity, identifing the target(s). The app shall provide the user with feedback as to whether the target(s) were hit successfully.** |
| **Keyword: PID Control of DC motor, Computer vision for target identification, Communication between different controllers and mobile app for given commands to the system.** |
| **Date: 5/3/2022** |
| **Signatures of Students:**  **1)**  **2)**  **3)** |
| **Signature of Supervisor(s):**  **1)**  **2)**  **3)** |