TU711/810 - 3rd Year Mechatronic Project List

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| # | ***Title*** | ***Notes*** |
| 1 | Automatic Blind | Arduino, low speed motor, gears, pulleys |
| 2 | Car Park Demonstration Unit | Arduino, servo motors, counter |
| 3 | Automated stair lift | Arduino, low speed motor, gears, pulleys |
| 4 | Househould Rainwater Harvesting control system | Arduino, pump, level sensors |
| 5 | Greenhouse control system | Arduino, servo motors, pump |
| 6 | Remote controlled home automation system | Arduino/android |
| 7 | Renewable energy street light | Arduino, LED, PIR, solar |
| 8 | Wheelchair Access Door | Arduino, servo motors, PIR/RFID |
| 9 | Automated pet door | Arduino, servo |
| 10 | Automated pet feeder | Arduino, low speed motor, solenoids |
| 11 | Model elevator system | Arduino, low speed motor, gears, pulleys |
| 12 | Automatic Vehicle Gate | Arduino/PLC, solenoids, PIR/RFID |
| 13 | Liquid level control system | Arduino/PLC, solenoids, pump |
| 14 | Ball Bearing/Marble sorter (sort by material) | PLC, solenoids, sensors |
| 15 | Conveyor sorter | Arduino/PLC, solenoids, sensors |
| 16 | Pedestrian and traffic light controller | Arduino/PLC, timer, leds, inductive sensors |
| 17 | Automated railway crossing system | PLC, solenoids, sensors, LEDS |
| 18 | Colour Sorter | Arduino, colour sensor, servos, limit sw |
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| **NOTE:** The acceptable criteria for a project design includes: |
| - A minimum of 4 and a maximum of 6 inputs (switches, sensors etc) |
| - 3 or 4 outputs (solenoids, motors, actuators etc) |
| - A footprint no greater than 300 x 300 x 200 mm (size of box of A4 paper) |
| - An appropriate selection of power sources (Mains voltage, low voltage dc, pneumatic etc) |
| - Some projects could be enhanced by using App Inventor, WiFi, RFID etc. |

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| **BACHELOR OF ENGINEERING IN MECHATRONIC ENGINEERING** |
| **TU Dublin TU711/815 3rd Year Project Selection** |

**Name: John Benedict Ocampo Divinagracia ID: B00158182**

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| **1st choice: Spirulina Bioreactor** |
| **Reason: I drink spirulina powder on a daily basis but it is proving to be quite expensive to buy them from the packet in powdered form. Spirulina is better fresh than in powdered form as the drying process eliminates important nutrients from the spirulina culture. Unfortunately shipping fresh spirulina can be costly, hence the higher market price. The only way to get fresh spirulina is if you make it yourself. The aim of the project is to produce a minimum viable product design of a spirulina cultivation system(bioreactor) that spirulina consumers can buy after mass production , so that they can grow their own fresh spirulina.** |
| **2nd choice: conveyor sorter** |
| **Reason: I would like to work with PLC in the industry and the best way to get into this industry is if I work on projects that utilize PLC. Almost all factories/production facilities use a conveyor belt system to sort their products.** |
| **3rd choice: automated pet feeder** |
| **Reason: My friend got an automated pet feeder last summer but it was substandard. I would like to build my own system using good quality, 3D printed materials. The pet feeder will also be interfaced online through the use of ESP32.** |
| **4th choice: automated insulin dispenser** |
| **Reason: I want to go into biomedical engineering industry and the best way to get into this industry is to showcase my knowledge of engineering and biology. This can be done through the use of PLC or ESP32. I can also showcase my knowledge in coding through the use of States and state diagrams** |