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|  | **HASAN KALYONCU UNIVERSITY****Computer Engineering Department****COME 499 Project Proposal Form** |

**Part I. Project Proposer**

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| **Name Lastname** | **Saed ALQARALEH** | **E-mail** | **saed.alqaraleh@hku.edu.tr** |
| **Company Information****(If you have collaboration with a company)** |  |

**Part II. Project Information**

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| **Starting Term** |

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| **Title of the Project** | Smart Dustbin - Smart Garbage Monitoring System |
| **Project Description** |
| This project is to design an IoT (Internet of Things) based ‘Smart Garbage Monitoring System’. Nowadays, cleaners especially those who work in large organizations or companies are losing time in checking every trash can to find out whether it is full or not. Therefore, an amount of time is wasted in this process.The main objective of the proposed smart trash can is to monitor the garbage level. For this, the proposed system uses ultrasonic sensors placed over the bins to detect the garbage level and compare it with the garbage bin's depth. This trash can also notify the cleaner when the trash can is full, moreover, it shows the status of the garbage. The microcontroller Arduino UNO will be used in this project. A mobile app will be built to get the information from the trash can and to notifying the cleaner about the trash can garbage. The microcontroller will send notifications about the status of the garbage to the app. There are multiple statuses with different reading values, For example, an empty status where the reading value is 0%, half-full where the reading value is 50%, and full status where the reading value is 100%. The value of each statue depends on how far the garbage from the sensor. |
| **Project Justification** |
| **Novelty** |
| **New aspects** | This undertaking of IoT Garbage Monitoring System is an innovative scheme that helps in keeping the environment clean while saving the workers time and effort.  |
| **Complexity** |
| **Challenging problem and issues** | The student will deep learning. He/she also to master mobile and android programming. Another challenge is creating the dataset for the deep learning model’s training. |
| **Related computer science fields and subfields** | Internet of Things, Arduino programming, Software Engineering, Mobile programing. |
| **Tools** | In general, this project requires Arduino Uno, ultrasonic sensor, Wi-Fi module, LED, resistor, and servo motor. Also, the App will be built using android studio.All required hardware will be provided by the advisor, i.e., it is already available |
| **Risk involved** |
| **Potential problems and alternative solutions** | System testing and documentation may take longer than expected due to last-minute errors in implementation. So we are planning to perform unit testing as early as possible. |
| **Minimum work required** | 2-3 students |