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

**Part I. Project Proposer**

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**Part II. Project Information**

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| **Starting Term** | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 2 | 0 | 1 | 9 | / | 2 | 0 | 2 | 0 | |
| **Title of the Project** | **Orchard Management and Tracking Application** |
| **Project Description** | |
| An orchard is an intentional planting of trees that is maintained for food production. Orchards comprise vast variety of foods including fruit- or nut-producing trees which are generally grown for commercial production. In orchards, trees are planted in an order which enables Orchardists to deal with each tree individually. It is very crucial for orchardists to keep track of history of the production, the treatments and pest eradications in their orchards throughout the year. This history tracking covers usually the whole land overall and even sometimes individual trees. Considering that an orchard consists of 100s of trees, dealing with individual tree history requires too much paperwork.  Because orchards are planted in an order like a grid, each tree can be modelled by row – column to track each tree. Such history tracking system could be developed easily by using what today’s computer technology offers. In this project, a mobile application will be developed which stores all historical information for the land and individual tree/s if needed. The application will give an annual overview of the whole orchard and individual trees for their production yields which helps orchardists to determine whether the treatment or practices in the previous years was helpful or not. Developed application will not only present raw data but also some visual data including annual tables and graphs. Orchards will benefit from such historical information in their next year planning and treatments for pest eradications. In addition, the application will remind the previous year/s treatments corresponding to current day. Also some scheduled tasks can be planned in advance not to forget any actions. Data will be stored on a server that will be periodically backed up to make sure no data is lost. | |
| **Project Justification** | |
| **Novelty** | |
| **New aspects** | Developing a multi-purpose management system for orchardists |
| **Complexity** | |
| **Challenging problem and issues** | Designing the efficient user interface and implementation of the algorithm for variety of cases that can be faced during the orchard management. |
| **Related computer science fields and subfields** | IOT, Image processing |
| **Tools** | Google Android platform and/or Apple Xcode developer.  SQlite Database on Android.  SQL Server |
| **Risk involved** | |
| **Potential problems and alternative solutions** | Replanting the damaged trees in the orchard might make algorithm challenging in terms of overall production analysis. In such cases, also age of the trees will be also included in the program. |
| **Minimum work required** | 4 MONTHS (2-3 Students) |